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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—ARE WE AUTOMATA?

Everyone is now acquainted with the Conscious-Automaton-theory to which Prof. Huxley[1] gave such publicity in his Belfast address; which the late Mr. D. A. Spalding punctiliously made the pivot of all his book-notices in *Nature;* which Prof. Clifford fulminated as a dogma essential to salvation in a lecture on "Body and Mind"[2]; but which found its earliest and ablest exposition in Mr. Hodgson's magnificent work, *The Theory of Practice.*[3] The theory maintains that in everything outward we are pure material machines. Feeling is a mere collateral product of our nervous processes, unable to react upon them any more than a shadow reacts on the steps of the traveller whom it accompanies. Inert, uninfluential, a simple passenger in the voyage of life, it is allowed to remain on board, but not to touch the helm or handle the rigging.

The theory also maintains that we are in error to suppose that our thoughts awaken each other by inward congruity or rational necessity, that disappointed hopes *cause* sadness, premisses conclusions, &c. The feelings are merely juxtaposed in that order without mutual cohesion, because the nerve-processes to which they severally correspond awaken each other in that order.

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[1] *Fortnightly Review*, Vol. XVI., p. 555.

[2] *Ibid.*, p. 714.

[3] Vol. I., pp. 416 ff.

It may seem strange that this latter part of the theory should be held by writers, who like Prof. Huxley have openly expressed their belief in Hume's doctrine of causality. That doctrine asserts that the causality we seem to find between the terms of a physical chain of events, is an illegitimate outward projection of the inward necessity by which we feel each thought to sprout out of its customary antecedent. Strip the string of necessity from between ideas themselves, and it becomes hard indeed for a Humian to say how the notion of causality ever was born at all.

This, however, is an *argumentum ad hominem* which need not detain us. The theory itself is an inevitable consequence of the extension of the notion of reflex action to the higher nerve-centres. Prof. Huxley starts from a decapitated frog which performs rational-seeming acts although probably it has no consciousness, and passing up to the hemispheres of man concludes that the rationality of their performances can owe nothing to the feelings that co-exist with it. This is the inverse of Mr. Lewes's procedure. He starts from the hemispheres, and finding their performances apparently guided by feeling concludes, when he comes to the spinal cord, that feeling though latent must still be there to make it act so rationally. Clearly such arguments as these may mutually eat each other up to all eternity.

The reason why the writers we speak of venture to dogmatise as they do on this subject, seems due to a sort of philosophic faith, bred like most faiths from an æsthetic demand. Mental and physical events are, on all hands, admitted to present the strongest contrast in the entire field of being. The chasm which yawns between them is less easily bridged over by the mind than any interval we know. Why then not call it an absolute chasm? And say not only that the two worlds are different, but that they are independent? This gives us the comfort of all simple and absolute formulas, and it makes each chain homogeneous to our consideration. When talking of nervous tremors and bodily actions, we may feel secure against intrusion from an irrelevant mental world. When, on the other hand, we speak of feelings, we may with equal consistency use terms always of one denomination, and never be annoyed by what Aristotle calls "slipping into another kind". The desire on the part of men educated in laboratories not to have their physical reasonings mixed up with such incommensurable factors as feelings is certainly very strong. Nothing is commoner than to hear them speak of conscious events as something so essentially vague and shadowy as even doubtfully to exist at all. I have heard a most intelligent biologist say: "It is high time for scientific men to protest against the recognition of any such thing as consciousness in a scientific investigation". In a word, feeling constitutes the "unscientific" half of existence, and any one who enjoys calling himself a "scientist" will be too happy to purchase an untrammeled homogeneity of terms in the studies of his predilection, at the slight cost of admitting a dualism which, in the same breath that it allows to mind an independent status of being, banishes it to a limbo of causal inertness, from whence no intrusion or interruption on its part need ever be feared.

But Common Sense also may have its æsthetic demands, and among them may be a craving for unity. The spectacle of an ultimate and inexplicable dualism in the nature of things may be as unsatisfying as the obligation to calculate with heterogeneous terms. Two "aspects," *nemine adspiciente*, seem uncalled for. One may well refuse, until absolutely overpowered by the evidence, to believe that the world contains items which in no wise influence their neighbours; whose existence or non-existence need, so far as the remainder go, be taken into no account. It is a smoother and more harmonious thought to imagine all the items of the world without exception as interlocked in bonds of action and reaction, and forming a single dynamic whole.

And now, who shall decide between such rival æsthetic needs? *A priori* to shrink from a "chasm" between the objects of one's contemplation is as respectable as to dislike heterogeneity in the factors of one's reasoning operations. The truth is, then, that neither æsthetic motives nor ostensible reasons entitle us to decide between the Conscious-Automaton-theory and the theory of Common Sense. Both alike are conceptions of the possible, and for any one dogmatically to affirm the truth of either is, in the present state of our knowledge, an extremely unscientific procedure.

The question for us then is: Can we get light from any facts hitherto ignored in the discussion? Since the direct evidence of our living feeling is ruled out of court as mendacious, can we find circumstantial evidence which will incline the balance either way, and save us from the dreary strife of prejudice and prepossession?

I think we can, and propose in the remainder of this article to show that this presumptive evidence wholly favours the efficacity of Consciousness. Consciousness, namely, has been slowly evolved in the animal series, and resembles in this all organs that have a use. Since the mere supernumerary depicted by the Conscious-Automaton-theory would be useless, it follows that if we can discover the utility of consciousness we shall overthrow that theory.

Our problem consequently is: Of what use to a nervous system is a superadded consciousness ? Can a brain which has it function better than a brain without it ? And to answer this question, we must know, first, the natural defects of the brain, and secondly, the peculiar powers of its mental correlate.

Since consciousness is presumably at its minimum in creatures whose nervous system is simple, and at its maximum in the hypertrophied cerebrum of man, the natural inference is that, as an *organe de perfectionnement*, it is most needed where the nervous system is highly evolved ; and the form our first question takes is: What are the defects characteristic of highly evolved nervous centres ?

If we take the actions of lower animals and the actions of lower ganglia in higher animals, what strikes us most in them is the determinateness with which they respond to a given stimulus. The addition of the cerebral hemispheres immediately introduces a certain incalculableness into the result, and this incalculableness attains its maximum with the relatively enormous brain-convolutions of man. In the beheaded frog the legs twitch as fatally when we touch the skin with acid as do a jumping-jack's when we pull the string. The machinery is as narrow and perfect in the one case as in the other. Even if all the centres above the cord except the cerebral hemispheres are left in place, the machine-like regularity of the animal's response is hardly less striking. He breathes, he swallows, he crawls, he turns over from his back, he moves up or down on his support, he swims and stops at a given moment, he croaks, he leaps forward two or three times—each and all with almost unerring regularity at my word of command, provided I only be an experienced physiologist and know what ganglia to leave and what particular spur will elicit the action I desire. Thus if I merely remove his hemispheres and tilt my hand down, he will crawl up it but not jump off. If I pinch him under the arm-pits, he will croak once for each pinch; if I throw him into water, he will swim until I touch his hands with a stick, when he will immediately stop. Over a frog with an entire brain, the physiologist has no such power. The signal may be given, but ideas, emotions or caprices will be aroused instead of the fatal motor reply, and whether the animal will leap, croak, sink or swim or swell up without moving, is impossible to predict. In a man's brain the utterly remote and unforeseen courses of action to which a given impression on the senses may give rise, is too notorious to need illustration. Whether we notice it at all depends on our mental pre-occupations at the moment. If we do notice it, our action again depends on the "considerations" which it awakens, and these again may depend as much on our transient mood or on our latest experience as on any constant tendencies organised in our nature.

We may thus lay it down as an established fact that the most perfected parts of the brain are those whose action are least determinate. It is this very vagueness which constitutes their advantage. They allow their possessor to adapt his conduct to the minutest alterations in the environing circumstances, any one of which may be for him a sign, suggesting distant motives more powerful than any present solicitations of sense. Now it seems as if certain mechanical conclusions should be drawn from this state of things. An organ swayed by slight impressions is an organ whose natural state is one of unstable equilibrium. We may imagine the various lines of discharge in the cerebrum to be almost on a par in point of permeability—what discharge a given small impression will produce may be called accidental, in the sense in which we say it is a matter of accident whether a rain-drop falling on a mountain ridge descend the eastern or the western slope. It is in this sense that we may call it a matter of accident whether a woman's first child be a boy or a girl. The ovum is so unstable a body that certain causes too minute for our apprehension may at a certain moment tip it one way or the other. The natural law of an organ constituted after this fashion can be nothing but a law of caprice. I do not see how one could reasonably expect from it any certain pursuance of useful lines of reaction such as the few and fatally determined performances of the lower centres constitute within their narrow sphere. The dilemma in regard to the nervous system seems to be of the following kind. We may construct one which will react infallibly and certainly, but it will then be capable of reacting to very few changes in the environment—it will fail to be adapted to all the rest. We may, on the other hand, construct a nervous system potentially adapted to respond to an infinite variety of minute features in the situation; but its fallibility will then be as great as its elaboration. We can never be sure that its equilibrium will be upset in the appropriate direction. In short, a high brain may do many things, and may do each of them at a very slight hint. But its hair-trigger organisation makes of it a happy-go-lucky, hit-or-miss affair. It is as likely to do the crazy as the sane thing at any given moment. A low brain does few things, and in doing them perfectly forfeits all other use. The performances of a high brain are like dice thrown for ever on a table. Unless they be loaded, what chance is there that the highest number will turn up oftener than the lowest?

All this is said of the brain as a physical machine pure and simple. Can consciousness increase its efficiency by loading its dice? Such is our next problem.

But before directly attacking it, we must pause a moment to make sure that we clearly apprehend the import of such expressions as *useful discharge, appropriate direction, right reaction,* and the like, which we have been using. They all presuppose some Good, End or Interest to be the animal's. Until this goal of his salvation be posited, we have no criterion by which to estimate the utility of any of his reactions. Now the important thing to notice is that the goal cannot be posited at all so long as we consider the purely physical order of existence. Matter has no ideals. It must be entirely indifferent to the molecules of C, H, N and O, whether they combine in a live body or a dead one. What the present conditions fatally necessitate, that they do with equal infallibility and cheerfulness; whether the result of their action be the perfume of a rose or the odour of carrion, the words of a Renouvier or the crackling of thorns under a pot, it is brought forth with as little reluctance in the one case as in the other. Good involves the notion of less good, necessitates comparison, and for a drop of water either to compare its present state with an absent state or to compare its total self with a drop of wine, would involve a process not commonly thought of as physical. Comparison requires a *tertium quid,* a *locus*—call it what you will—in which the two outward existences may meet on equal terms. This forum is what is known as a consciousness. Even sensations cannot be supposed, simply as such, to be aware of their relations to each other. A succession of feelings is not (as James Mill reiterates) one and the same thing with a feeling of succession, but a wholly different thing. The latter feeling requires a self-transcendency of each item, so that each not only *is* in relation, but knows its relation, to the other. This self-transcendency of data constitutes the conscious form. Where we suppose it to exist we have mind; where mind exists we have it.

You may, it is true, ascribe mind to a physical process. You may allow that the atom engaged in some present energy has a dreamlike consciousness of residual powers and a judgment which says, "Those are better than this". You may make the rain-drop flowing downhill posit an impossible ascent as its highest good. Or you may make the C, H, N and O atoms of my body knowingly to conspire in its construction as the best act of which they are capable. But if you do this, you have abandoned the sphere of purely physical relations.

Thus, then, the words Use, Advantage, Interest, Good, find no application in a world in which no consciousness exists.

Things there are neither good nor bad; they simply are or are not. Ideal truth to exist at all requires that a mind also exist which shall deal with it as a judge deals with the law, really creating that which it professes only to declare.

But, granting such a mind, we must furthermore note that the direction of the verdict as to whether A or B be best, is an ultimate, arbitrary expression of feeling, an absolute fiat or decree. What feels good *is* good; if not it is only because it negates some other good which the same power of feeling stamps as a Better.[1]

Thus much, then, is certain, that in venturing to discuss the perfection and uses of the brain at all, we assume at the outset the existence of *some one's* consciousness to make the discussion possible by defining some particular good or interest as the standard by which the brain's excellence shall be measured. Without such measure Bismarck's brain is no better than a suicidal maniac's, for the one works as perfectly as the other to its end. Considered as mere existence, a festering corpse is as real as a live chancellor, and, for aught physics can say, as desirable. Consciousness in declaring the superiority of either one, simply creates what previous to its fiat had no existence. The judge makes the law while announcing it: if the judge be a maggot, the suicide's brain will be best; if a king, the chancellor's.

The consciousness of Mr. Darwin lays it down as axiomatic that self-preservation or survival is the essential or universal good for all living things. The mechanical processes of "spontaneous variation" and "natural selection" bring about this good by their combined action; but being physical processes they can in no sense be said to intend it. It merely floats off here and there accidentally as one of a thousand other physical results. The followers of Darwin rightly scorn those teleologists who claim that the physical process, as such, of evolution follows an ideal of perfection. But now suppose that not only our Darwinian consciousness, but with even greater energy the consciousness of the creature itself, postulates survival as its *summum bonum*, and by its cognitive faculty recognises as well as Mr. Darwin which of its actions and functions subserves this good; would not the addition of causal efficacy to this consciousness enable it to furnish forth the means as well as fix the end—make it teleologically a fighter as well as a standard-bearer? Might not, in other words, such a consciousness promote or increase by its function of efficacity the amount of that "usefulness" on the part of the brain which it defines and estimates by its other functions? To answer such a question, we must analyse somewhat closely the peculiarities of the individual consciousness as it phenomenally presents itself to our notice.

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[1] I have treated this matter of teleology being an exclusively conscious function more at length in an article on "Spencer's Definition of Mind" (*Journal of Speculative Philosophy*, Jan., 1878), to which I take the liberty of referring the reader. The fact that each consciousness simply *stakes* its ends and challenges the world thereby, is most conspicuous in the case of what is called Self-love. There the end staked by each mind is peculiar to itself, whilst in respect of other ends many minds may unite in a common position. But in their psychological essence these impersonal ends in no wise differ from self-interest. Abolish the minds to whom they seem good and they have no status; any more than the categorical imperative that perish who may John Smith must wax fat and prosper, has a *ratio existendi* after Smith's peculiar lusts have been annihilated.

If we use the old word category to denote every irreducibly peculiar form of synthesis in which phenomena may be combined and related, we shall certainly have to erect a category of consciousness, or what with Renouvier we may, if we prefer, call a category of personality. This category might be defined as the mode in which data are brought together for *comparison with a view to choice.*[1] Both these points, comparison and choice, will be found alike omnipresent in the different stages of its activity. The former has always been recognised; the latter less than it deserves.

Many have been the definitions given by psychologists of the essence of consciousness. One of the most acute and emphatic of all is that of Ulrici, who in his *Leib und Seele* and elsewhere exactly reverses the formula of the reigning British school, by calling consciousness a discriminating activity—an *Unterscheidungsvermögen.* But even Ulrici does not pretend that consciousness creates the differences it becomes aware of in its objects. They pre-exist and consciousness only discerns them; so that after all Ulrici's definition amounts to little more than saying that consciousness is a faculty of cognition—a rather barren result. I think we may go farther and add that the powers of cognition, discrimination and comparison which it possesses, exist only for the sake of something beyond themselves, namely, Selection. Whoever studies consciousness, from any point of view whatever, is ultimately brought up against the mystery of *interest* and *selective attention.* There are a great many things which consciousness *is* in a passive and receptive way by its cognitive and registrative powers. But there is one thing which it *does, suâ sponte,* and which seems an original peculiarity of its own; and that is, always to choose out of the manifold experiences present to it at a given time some one for particular accentuation, and to ignore the the rest. And I shall now show how, from its simplest to its most complicated forms, it exerts this function with unremitting industry.

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[1] Neither 'association' nor 'dissociation' is synthesis of a peculiar kind; they are mere generic modes, and are wholly unfit to serve as *differentiae* of psychical phenomena in any general philosophical classification. Comparison and choice, on the contrary, are each *sui generis.* Let it not be said that a magnet compares the different filings in a machine-shop to choose the iron filings from the heap. There is no proof that the brass filings appeal to it at all. In comparison, both terms equally appeal to consciousness.

To begin at the bottom, even in the infra-conscious region which Mr. Spencer says is the lowest stage of mentality. What are our senses themselves but organs of selection? Out of the infinite chaos of movements, of which physics teaches us that the outer world consists, each sense-organ picks out those which fall within certain limits of velocity. To these it responds, but ignores the rest as completely as if they did not exist. It thus accentuates particular movements in a manner for which objectively there seems no valid ground; for, as Lange says, there is no reason whatever to think that the gap in nature between the highest sound-waves and the lowest heat-waves is an abrupt break like that of our sensations, or that the difference between violet and ultra-violet rays has anything like the objective importance subjectively represented by that between light and darkness. Out of what is in itself an undistinguishable, swarming *continuum,* devoid of distinction or emphasis, our senses make for us, by attending to this motion and ignoring that, a world full of contrasts, of sharp accents, of abrupt changes, in a word, of picturesque light and shade.

If the sensations we receive from a given organ have their causes thus picked out for us by the conformation of the organ's termination, the attention, on the other hand, out of all the sensations yielded, picks out certain ones as worthy of its notice and suppresses all the rest. Helmholtz's immortal work on *Physiological Optics* is little more than a study of those visual sensations of which common men never become aware—blind spots, *muscae volitantes,* after-images, irradiation, chromatic fringes, marginal changes of colour, double images, astigmatism, movements of accommodation and convergence, retinal rivalry, and more besides. We do not even know, as Professor William B. Rogers pointed out, on which of our eyes an image falls, until trained to notice the local sensation. So habitually overlooked is this by most men that one may be blind for years of a single eye and not know it.[1]

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[1] If one cared to indulge in *à priori* constructions *à la* Spencer, one might easily show how the differentiation of sense-organs arose in the primitive polyp through this reinforcement by a selective attention (sup-

Helmholtz says we only use our sensations as *signs*. The sensations from which we avert our attention are those which are valueless as tokens of the presence of objective things. These *things* are called the Objects of perception. But what are *they?* Nothing, as it seems to me, but groups of coherent sensations. This is no place to criticise Helmholtz's treatment of perception, but I may say, in passing, that I think his rather indefinite and oracular statements about the part played by the intellect therein have momentarily contributed to retard psychological inquiry. We find the Kantian philosophers everywhere hailing him as the great experimental corroborator of their master's views. They say he has proved the present sensation to have nothing to do with the construction of the Object—that is an original act of the intellect which the sensation merely instigates but does not furnish forth: it contains ultra-sensational elements. All that Helmholtz really *does* prove is, that the so-called Object is constituted of *absent* sensations. What he has not explicitly noticed is, that among these the mind picks out certain particular ones to be more essential and characteristic than the rest. When, for example, on getting a peculiar retinal sensation with two acute and two obtuse angles, I *perceive* a square table-top, which thus contradicts my present image; what is the *squareness* but one out of an infinite number of possible retinal sensations which the same object may yield? From all these the mind, for æsthetic reasons of its own, has singled out this one and chosen to call it the object's essential attribute? Were room here given, I think it might be shown that perception involves nothing beyond association and selection. The antithesis is not, as Helmholtz's admirers would have it, between sensations on the one hand as signs and original intellectual products, materially different from

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posed efficacious) of particular portions of the feeling yielded by an organ already nascent. The integument of the animal might, for instance, at first be affected both by light-vibrations and by those far below them. But if the former were picked out by the consciousness as most interesting, the nervous movements would soon grow more and more harmonious with them, and more and more out of tune with the rest. An optic nerve and retina would thus result. One might corroborate this reasoning by pointing to what happens in cases of squint. The squinting eye gives double images which are so inconvenient that the mind is forced to abstract its attention from them. This resolute refusal to attend to the sensations of one eye soon makes it totally blind. It would seem, indeed, that the attention positively suppressed the function of the retina, for the presence of cataract which keeps the image from it altogether, results in no such paralysis. I do not insist on this point, partly because such speculation is rather cheap—"all may raise the flowers now, for all have got the seed"—and partly because there seems some reason to doubt whether the usually received explanation of strabismic blindness be correct.

sensations on the other, as Objects. It is between present sensations as signs and certain absent sensations as Objects, these latter being moreover arbitrarily selected out of a large number as being more objective and real than the rest. The real form of the circle is deemed to be the sensation it gives when the line of vision is perpendicular to its centre—all its other sensations are signs of this sensation. The real sound of the cannon is the sensation it makes when the ear is close by. The real colour of the brick is the sensation it gives when the eye looks squarely at it from a near point, out of the sunshine and yet not in the gloom; under other circumstances it gives us other colour-sensations which are not signs of this—we then see it looks pinker or blacker than it really is. The reader knows no object which he does not represent to himself by preference as in some typical attitude, of some normal size, at some characteristic distance, of some standard tint, &c., &c. But all these essential characteristics, which together form the genuine objectivity of the thing and are contrasted with the subjective sensations we may happen to get from it at a given moment, are themselves sensations pure and simple, susceptible of being fully given at *some* other moment. The spontaneity of the mind does not consist in conjuring up any new non-sensational quality of objectivity. It consists solely in deciding what the particular sensation shall be whose native objectivity shall be held more valid than that of all the rest.[1]

Thus perception involves a twofold choice. Out of all present sensations, we notice mainly such as are significant of absent ones: and out of all the absent associates which these suggest, we again pick out a very few to be the bearers *par excellence* of objective reality. We could have no more exquisite example of the mind's selective industry.

That industry goes on to deal with the objects thus given in perception. A man's Empirical Thought depends on the objects and events he has experienced, but what these shall be is to a large extent determined by his habits of attention. An object may be present to him a thousand times, but if he persistently fails to notice it, it cannot be said to enter into his experience. We are all seeing flies, moths, and beetles by the thousand, but to whom, save an entomologist, do they say anything distinct? On the other hand, an object met only once in a life-time may leave an indelible experience in the memory. Let four men make a tour in Europe. One will bring home only picturesque impressions—costumes and colours, parks and views and works of architecture, pictures and statues. To another all this will be non-existent; and distances and prices, populations and drainage-arrangements, door- and window-fastenings, and other useful statistics will take their place. A third will give a rich account of the theatres, restaurants, and public balls, and naught beside; whilst the fourth will perhaps have been so wrapped in his own subjective broodings as to tell little more than a few names of places through which he passed. Each has selected, out of the same mass of presented objects, those which suited his private interest and has made his experience thereby.

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[1] When I say Objects are wholly formed of associated and selected sensations, I hope the reader will not understand me to profess adhesion to the old atomic doctrine of association, so thoroughly riddled of late by Professor Green. The association of sensations of which I speak, presupposes comparison and memory which are functions not given in any one sensation. All I mean is, that these mental functions are already at work in the first beginnings of sensation and that the simplest changes of sensation moreover involve consciousness of all the categories—time, space, number, objectivity, causality. There is not first a passive act of sensation proper, followed by an active production or projection ("inference") of the attributes of objectivity by the mind. These all come to us together with the sensible qualities, and their progress from vagueness to distinctness is the only process psychologists have to explain. What I mean to say in the text is, that this process involves nothing but association and selection, all new production of either material or formal elements being denied.

If, now, leaving the empirical combination of objects, we ask how the mind proceeds *rationally* to connect them we find selection again to be omnipotent. In an article on "Brute and Human Intellect" in the *Journal of Speculative Philosophy*, July 1878, p. 236, I have tried to show that all Reasoning depends on the ability of the mind to break up the totality of the phenomenon reasoned about into partial factors or elements, and to pick out from among these the particular one which, in our given theoretical or practical emergency, may lead to the proper conclusion. Another predicament will need another conclusion, and require another element to be picked out. The man of genius is he who will always stick-in his bill, as it were, at the right point, and bring it out with the right element—"reason" if the emergency be theoretical, "means" if it be practical—transfixed upon it? Association by similarity I have shown to be an important help to this breaking-up of represented things into their elements. But this association is only the minimum of that same selection of which picking out the right reason is a maximum. I here confine myself to this brief statement, but it may suffice to show that Reasoning is but another form of that selective activity which appears to be the true sphere of mental spontaneity.

If now we pass to the Æsthetic activity of the mind, the application of our law is still more obvious. The artist notoriously selects his items, rejecting all tones, colours, shapes, which do not harmonise with each other and with the main purpose of his work. That unity, harmony, "convergence of characters," as M. Taine calls it, which gives to works of art their superiority over works of nature, is wholly due to *elimination.* Any natural subject will do, if the artist has wit enough to pounce upon some one feature of it as characteristic, and suppress all merely accidental items which do not harmonise with this.

Ascending still higher we reach the plane of Ethics, where choice reigns notoriously supreme. An act has no ethical quality whatever unless it be chosen out of several all equally possible. To sustain the arguments for the good course and keep them ever before us, to stifle longing for more flowery ways, to keep the foot unflinchingly on the arduous path, these are characteristic ethical energies. But more than these; for these but deal with the means of compassing interests already felt by the man to be supreme. The ethical energy *par excellence* has to go farther and choose which interest out of several equally coercive shall become supreme. The issue here is of the utmost pregnancy, for it decides a man's entire career. When he debates, Shall I commit this crime? choose that profession? accept that office, or marry this fortune?—his choice really lies between one of several equally possible future *Selves.* What his entire empirical *Ego* shall become, is fixed by the conduct of this moment. Schopenhauer, who enforces his determinism by the argument that with a given fixed character only one reaction is possible under given circumstances, forgets that, in these critical ethical moments, what consciously *seems* to be in question is the very complexion of the character. The problem with the man is less what act he shall now choose to do, than what kind of a being he shall now resolve to become.

Looking back then over this review we see that the mind is at every stage a theatre of simultaneous possibilities. Consciousness consists in the comparison of these with each other, the selection of some, and the suppression of the rest by the reinforcing and inhibiting agency of Attention. The highest and most elaborated mental products are filtered from the data chosen by the faculty next beneath out of the mass offered by the faculty below that, which mass in turn was sifted from a still larger amount of yet simpler material, and so on. The highest distillate thus *represents* in the last analysis nothing but sensational elements. But this is far from meaning that it implies nothing but passive faculty of sensation. As well might one say that the sculptor is passive, because the statue stood from eternity within the stone. So it did, but with a million different ones beside it. The world as a Goethe feels and knows it all lay embedded in the primordial chaos of sensations, and into these elements we may analyse back every thought of the poet. We may even, by our reasonings, unwind things back to that black and jointless continuity of space and moving clouds of swarming atoms which science calls the only real world. But all the while the world we feel and live in, will be that which our ancestors and we, by slowly cumulative strokes of choice, have extricated out of this, as the sculptor extracts his statue by simply rejecting the other portions of the stone. Other sculptors, other statues from the same stone! Other minds, other worlds from the same chaos! Goethe's world is but one in a million alike embedded, alike real to those who may abstract them. Some such other worlds may exist in the consciousness of ant, crab and cuttle-fish.

After this perhaps too long analysis let us now look back. We have found that the unaided action of the cerebral hemispheres would probably be random and capricious; that the nerve-process likely to lead to the animal's interests would not necessarily predominate at a given moment. On the other hand, we have found that an impartial consciousness is a nonentity, and that of the many items that ever occupy our mental stage Feeling always selects one as most congruous with the interests it has taken its stand upon. Collating these two results, an inference is unavoidable. The "items" on the mental stage are the subjective aspects of as many nerve-processes, and in emphasising the representations congruous with conscious interest and discouraging all others, may not Attention actually reinforce and inhibit the nerve-processes to which the representations severally correspond?

This of course is but a hypothetical statement of the verdict of direct personal feeling—a verdict declared mendacious by Professor Clifford. But the intricate analysis by which it has been reached gives it great plausibility. I shall strengthen the probability by further facts in a moment. But I beg the reader to notice here the limitations of the power of Feeling, if power there be. All the possibilities of representation, all the images are furnished by the brain. Consciousness produces nothing, it only alters the proportions. Even the miraculous action of free will can only consist in the quantitative reinforcement of representations already given qualitatively. A sonorous plate has no proper note of its own. It is almost impossible by scraping it to reproduce twice an identical tone. The number of Chladni's sand-figures it will furnish is as inexhaustible as the whimsies which may turn up in a brain. But as the physicist's finger pressing the plate here or there determines nodal points that throw the sand into shapes of relative fixity, so may the accentuating finger of consciousness deal with the fluctuating eddies in the cerebral cortex.

That these eddies are stirred by causes that have no connection with either dominant interests or present impressions seems manifest from the phenomena of dreaming. The chaotic imagery there appears due to the unequal stimulus of nutrition in different localities. But if an accidental variation in nutrition is sufficient to determine the brain's action, what safeguard have we at any time against its random influence? It may of course be reasonably objected that the exceptional state of sleep can afford no proper clue to the brain's operations when awake. But Maury in his classic work, *Le Sommeil*, has conclusively proved the passage of dreams through "hypnagogic hallucinations" into that meteoric shower of images and suggestions, irrelevant to the main line of thought, the continual presence of which every one who has once had his *interest awakened* in the subject, will without difficulty recognise in himself. Ordinarily these perish in being born, but if one by chance saunters into the mind, which *is* related to the dominant pursuit of the moment, presto! it is pounced upon and becomes part of the empirical *Ego*. The greatest inventions, the most brilliant thoughts often turn up thus accidentally, but may mould for all that the future of the man. Would they have gained this prominence above their peers without the watchful eye of consciousness to recognise their value and emphasise them into permanence?

> Nur allein der *Mensch*
> Vermag das Unmögliche.
> Er unterscheidet, wählet und richtet,
> Er kann dem Augenblick
> Dauer verleihen.

The hypothesis we are advocating might, if confirmed, considerably mitigate one of the strongest objections to the credibility of the Darwinian theory. A consciousness which should not only determine its brain to prosperous courses, but also by virtue of that hereditary influence of habit (nowadays so generally believed in by naturalists) should organise from generation to generation a nervous system more and more mechanically incapable of wandering from the lines of interest chosen for it at first, would immensely shorten the time and labour of natural selection. Mr. Darwin regards animated nature as a sort of table on which dice are continually being thrown. No intention presides over the throwing, but lucky numbers from time to time fortuitously turn up and are preserved. If the ideas we have advanced concerning the instability of a complicated cerebrum be true, we should have a sort of extension of this reign of accident into the functional life of every individual animal whose brain had become sufficiently evolved. As his body morphologically was the result of lucky chance, so each of his so-called acts of intelligence would be another; and ages might elapse before out of this enormous lottery-game a brain should emerge both complex and secure. But give to consciousness the power of exerting a constant pressure in the direction of survival, and give to the organism the power of growing to the modes in which consciousness has trained it, and the number of stray shots is immensely reduced, and the time proportionally shortened for Evolution. It is, in fact, hard to see how without an effective superintending ideal the evolution of so unstable an organ as the mammalian cerebrum can have proceeded at all.

That consciousness should only be intense when nerve-processes are retarded or hesitant, and at its minimum when nerve-action is rapid or certain, adds colour to the view that it is efficacious. Rapid, automatic action is action through thoroughly excavated nerve-tracks which have not the defect of uncertain performance. All instincts and confirmed habits are of this sort. But when action is hesitant there always seem several alternative possibilities of nervous discharge. The feeling awakened by the nascent excitement of each nerve-track seems by its attractive or repulsive quality to determine whether the excitement shall abort or shall become complete. Where indecision is great, as before a dangerous leap, consciousness is agonisingly intense. Feeling, from this point of view, may be likened to a cross-section of the chain of nervous discharge, ascertaining the links already laid down, and groping among the fresh ends presented to it for the one which seems best to fit the case.

The remarkable phenomena of "vicarious function" in the nervous centres form another link in our chain of circumstantial evidence. A machine in working order functions fatally in one way. Our consciousness calls this the right way. Take out a valve, throw a wheel out of gear or bend a pivot, and it becomes a different machine, functioning just as fatally in another way which we call the wrong way. But the machine itself knows nothing of wrong or right: matter has no ideals to pursue. A locomotive will carry its train through an open drawbridge as cheerfully as to any other destination.

A brain with part of it scooped out is virtually a new machine, and during the first days after the operation functions in a thoroughly abnormal manner. Why, if its performances blindly result from its structure, undirected by any feeling of purpose, should it not blindly continue now to throw off inappropriate acts just as before its mutilation it produced appropriate ones? As a matter of fact, however, its performances become from day to day more normal, until at last a practised eye may be needed to suspect anything wrong. If we suppose the presence of a mind, not only taking cognisance of each functional error, but able to exert an efficient pressure to inhibit it if it be a sin of commission, to lend a strengthening hand if the nerve-defect be a weakness or sin of omission,—nothing seems more natural than that the remaining parts of the brain, assisted in this way, should by virtue of the principle of habit grow back to the old teleological modes of exercise for which they were at first incapacitated. Nothing, on the contrary, seems at first sight more unnatural than that they should vicariously take up the duties of a part now lost without those *duties as such* exerting any persuasive or coercive force.[1]

There is yet another set of facts which seem explicable by the supposition that consciousness has causal efficacity. It has long been noticed that pleasures are generally associated with beneficial, pains with detrimental, experiences. All the fundamental vital processes illustrate this law. Starvation, suffocation, privation of food, drink and sleep, work when exhausted, burns, wounds, inflammation, the effects of poison, are as disagreeable as filling the hungry stomach, enjoying rest and sleep after fatigue, exercise after rest, and a sound skin and unbroken bones at all times, are pleasant. Mr. Spencer, in the chapter of his *Psychology* entitled "Pleasures and Pains," has suggested that these coincidences are due, not to any pre-established harmony, but to the mere action of natural selection which would certainly kill off in the long run any breed of creatures to whom the fundamentally noxious experience seemed enjoyable. An animal that should take pleasure in a feeling of suffocation would, if that pleasure were efficacious enough to make him immerse his head in water, enjoy a longevity of four or five minutes. But if pleasures and pains have no efficacity, one does not see (without some such *à priori* rational harmony as would be scouted by the "scientific" champions of the Automaton-theory) why the most noxious acts, such as burning, might not give a thrill of delight, and the most necessary ones, such as breathing, cause agony.[2] The exceptions to this law are, it is true, numerous, but relate to experiences that are either not vital or not universal. Drunkenness, for instance, which though noxious is to many persons delightful, is a very exceptional experience. But, as the excellent physiologist Fick remarks, if all rivers and springs ran alcohol instead of water, either all men would hate it or our nerves would have been selected so as to drink it with impunity. The only very considerable attempt, in fact, that has ever been made to explain the *distribution* of our feelings is that of Mr. Grant Allen in his suggestive little work *Physiological Æsthetics;* and his reasoning is based exclusively on that causal efficacity of pleasures and pains which the "double-aspect" partisans so strenuously deny.

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[1] This argument, though so striking at first sight, is perhaps one which it would be dangerous to urge too dogmatically. It may be that restitution of cerebral function is susceptible of explanation on drainage-principles, or, to use Stricker's phrase, by "collateral innervation". As I am preparing a separate essay on this subject, I will say no more about the matter here.

[2] I do not overlook an obvious objection suggested by such an operation as breathing. It, like other motor processes, results from a tendency to nervous discharge. When this takes place immediately, hardly any feeling but the

Thus, then, from every point of view the circumstantial evidence against that theory is very strong. *A priori* analysis of both brain and conscious action shows us that if the latter were efficacious it would, by its selective emphasis, make amends for the indeterminateness of the former; whilst the study *à posteriori* of the *distribution* of consciousness shows it to be exactly such as we might expect in an organ added for the sake of steering a nervous system grown too complex to regulate itself. The conclusion that it is useful is, after all this, more than justifiable. But, if it is useful, it must be so through its efficaciousness, and the Conscious-Automaton-theory must succumb to the theory of Common Sense.

Our discussion might fairly stop here save for the possible difficulty some readers may have in appreciating the full utility of having certain nervous possibilities emphasised above the rest. The measure of all utility is, as we have seen, some standard posited by Desire. The standard of survival or self-preservation is most potent. But there exist a host of other standards, æsthetic and moral, imperative so long as they do not conflict with this one and sometimes imperative over this one. In the preliminary selection by the senses of certain objective orders of movement, it is difficult to see what standard

rather negative one of ease results. When, however, a nervous discharge is checked it is a universal law that consciousness of a disagreeable kind is awakened, reaching in the case of suffocation the extremity of agony. An Automatist may then say that feeling here, so far from playing a dynamic part, is a mere passive index or symptom of certain mechanical happenings; and if here, then elsewhere. It may be replied that even were this true of completely habitual acts like breathing, where the nervous paths have been thoroughly organised for generations, it need not be true of hesitant acts not yet habitual; it need not be true of pains and pleasures, such as hunger and sleep, *not* connected with motor discharge; and even in the instance chosen it leaves out the possibility that the nervous mechanism, now automatically perfect, may have become so by slowly organised habit acquired under the guidance of conscious feeling.

is subserved. The utility of not having a sense for magnetism when we have one for heat, is not obvious. We may at most suspect a possible æsthetic brightness and clearness to result from the wide intervals. But passing by this obscure region we see without the least difficulty why we ignore those ingredients of sensation which are not signs of things. What the peculiarity is in itself which makes Smith's voice so different from Brown's, we need never inquire so long as whenever we hear it we say, "There is Smith". For our practical interest in recognising whom we have to deal with outweighs our interest in the shades of sound *per se.* The selection again of certain attitudes, expressions, &c., in Smith, to stand as characteristic of him so that when others are present we say, "He does not look like himself," and if he is sitting to us for his portrait we spend an hour perhaps in placing him and lighting him so as to bring out with the utmost clearness these selected traits—this selection, I say, is equally explicable by various æsthetic standards, permanency, simplicity, harmony, clearness, and the like. Passing now from traits to *things*, the utility of selection is obviously created and measured by the interests the man has made his own. If Edward never walks out without finding a four-leafed clover, while Oliver dies of old age without having seen one, this is merely due to the fact that Edward has somehow been led to stake his happiness on that particular branch of discovery, and out of a visual field identical with that of Oliver has picked the details that minister to this somewhat arbitrary interest. Granted the interest, we cannot deny the use of the picking-out power. That Edward, having this interest in common with many others, should finally succeed in emphasising certain of those others and suppressing this, would be an example of the utility of selection in the ethical field, supposing always that the new interest chosen were of a higher order and not, like making puns, for example, as trivial an end as the one forsaken.

In the ethical field the importance of choosing one's paramount interest is universally recognised. But it is not so commonly known how, when the interest is once fixed upon, the selective activity must ceaselessly work to detect its presence or absence in each emergency that turns up. Take, for example, an inebriate struggling with temptation. The glass is before him, and the act of drinking has an infinity of aspects and may be defined in as many ways. If he selected the aspect of its helping him to write an article, of its being only lager-beer, of its being the fourth of July, of his needing it as medicine, of his never having formally signed the pledge, of this particular drink "not counting," or else of its giving him the strength to make a much more powerful resolution for the future than any of his previous ones, or whatever other sophistries his appetite may instigate, he does but accentuate some character really contained in the act, but needing this emphasising pressure of his attention to be erected into its essence. But if, out of all the teeming suggestions with which the liquor before him inspires his brain, respectively saying, "It is a case of this good, of that interest, of yonder end," his mind pounces on one which repeats, "*It is essentially a case of drunkenness!*" and never lets that go, his stroke of classification becomes his deed of virtue. The power of choosing the right name for the case is the true moral energy involved, and all who posit moral ends must agree in the supreme utility of, at least, this kind of selective attention.

But this is only one instance of that substitution for the entire phenomenon of one of its partial aspects which is the essence of all reasoned thought as distinguished from mere habitual association. The utility of reasoned thought is too enormous to need demonstration. A reasoning animal can reach its ends by paths on which the light of previous experience has never shone. One who, on the contrary, cannot break up the total phenomenon and select its essential character must wait till luck has already brought it into conjunction with his End before he can guess that any connexion obtains between the two. All this is elaborated in the article "On Brute and Human Intellect" to which I have ventured to refer the reader. In that article (p. 274) I stated that I had found it impossible to symbolise by any mechanical or chemical peculiarity that tendency of the human brain to focalise its activity on small points which seems to constitute the essence of its reasoning power. But if such focalisation be really due not so much to structural peculiarity as to the emphasising power of an efficacious consciousness superadded, the case need no longer perplex us.

Of course the materialist may still say that the emphasised attention obeys the strongest vibration and does not cause it, that we will what we do, not do what we will,—that, in short, interest is passive and at best a *sign* of strength of nerve-disturbance. But he is immediately confronted by the notorious fact that the strongest tendencies to automatic activity in the nerves often run most counter to the selective pressure of consciousness. Every day of our lives we struggle to escape some tedious tune or odious thought which the momentary disposition of the brain keeps forcing upon us. And, to take more extreme cases, there are murderous tendencies to nervous discharge which, so far from involving by their intensity the assent of the will, cause their subjects voluntarily to repair to asylums to escape their dreaded tyranny. In all these cases of *voluntas paradoxa* or *invita*, the individual selects out of the two possible selves yielded by his cerebral powers one as the true *Ego;* the other he regards as an enemy until at last the brain-storm becomes too strong for the helmsman's power. But even in the depths of mania or of drunkenness the conscious man can steady himself and be rational for an instant if a sufficient motive be brought to bear. He is not dead, but sleepeth.

I should be the last to assert that the Common-Sense-theory leaves no difficulties for solution. I feel even more strongly than Professors Huxley and Clifford that the only *rational nexus* is that of identity, and that feeling and nerve-tremor are disparate. I feel too that those who smile at the idea of calling consciousness an "organ," on a par with other organs, may be moved by a fundamentally right instinct. And I moreover feel that that unstable equilibrium of the cerebrum which forms the pivot of the argument just finished may, with better knowledge, be found perfectly compatible with an average appropriateness of its actions taken in the long run. But with all these concessions made, I still believe the Common-Sense-theory to merit our present credence. Fragmentary probabilities supported by the study of details are more worthy of trust than any mere universal conceptions, however tempting their simplicity. Science has won all her credit by the former kind of reasoning, Metaphysics has lost hers by the latter. The impossibility of motion, of knowledge, either subjective or objective, are proved by arguments as good as that which denies causality to feeling, because of its disparity with its effects. It is really monstrous to see the *prestige* of "Science" invoked for a materialistic conclusion, reached by methods which, were they only used for spiritualistic ends, would be hooted at as antiscientific in the extreme. Our argument, poor as it is, has kept at any rate upon the plane of concrete facts. Its circumstantial evidence can hardly be upset until the Automaton-theorists shall have condescended to make or invoke some new discoveries of detail which shall oblige us to reinterpret the facts we already know. But in that case I feel intimately persuaded that the reinterpretation will be so wide as to transform the Automaton-theory as thoroughly as the popular one. The Automaton-theory in its present state contents itself with a purely negative deliverance. There is a chasm, it says, between feeling and act. Consciousness is impotent. It exists, to be sure, but all those *manners* of existence which make it seem relevant to our outward life are mere meaningless coincidences, inexplicable parts of the general and intimate irrationality of this disjointed world. What little continuity and reason there seems to be, it says, lies wholly in the field of molecular physics.

Thither Science may retreat and hump her strong back against the mockeries and phantasms that people the waste of Being around.

Now the essence of the Common-Sense-theory, I take it, is to negate these negations. It obstinately refuses to believe Consciousness irrelevant or unimportant to the rest. It is there for a purpose, it has a meaning. But as all meaning, relevancy and purpose are symbolised to our present intelligence in terms of action and reaction and causal efficacy, Common Sense expresses its belief in the worth of Feeling by refusing to conceive of it out of these relations. When a philosophy comes which, by new facts or conceptions, shall show how particular feelings may be destitute of causal efficacy without the genus Feeling as a whole becoming the sort of *ignis fatuus* and outcast which it seems to be to-day to so many "scientists" (loathly word!), we may hail Professors Huxley and Clifford as true prophets. Until then, I hold that we are incurring the slighter error by still regarding our conscious selves as actively combating each for his interests in the arena and not as impotently paralytic spectators of the game.

WM. JAMES.

II.—ON DISCORD.

MR. GRANT ALLEN, in his recent book on *Physiological Æsthetics*, adopted the words "maximum of stimulation with minimum of fatigue" as the general formula for the conditions of peripheral stimulation most favourable to pleasure in the case of the higher sense-organs. I wish to point out some considerations which seem to detract from the value and generality of this formula. One obvious objection may be seen at once to be the use of the subjective word "fatigue" for the expression of objective phenomena in physiology: and it is ultimately owing, as I believe, to this dangerous and misleading use that the other weak points in the formula, if such indeed they prove to be, easily escape detection.

To illustrate my first objection, we may take a case or two where the sort of ratio expressed in the formula seems familiar to us. We say, for instance, that a skilful violinist extracts from his strings the maximum of transverse with the minimum of longitudinal vibration; or that mountain-air enables us to walk a maximum number of miles with a minimum of fatigue. In either case the two terms of the ratio are clearly distinct things, which may be conceived as increasing together or decreasing together, or one of which may increase as the other decreases.

Now let us look at the word "fatigue" as used in the formula. It relates simply to physiological facts, to the molecular disturbances of stimulated organs in which wear is outrunning repair, and which are thus being brought further and further from the state they were in to start with, without a chance of recurring to that state during the continuance of the stimulation[1]; a condition whose relation to the condition of stimulation *without* "fatigue" finds a rough parallel in the difference of behaviour of two bodies respectively moved from a position of unstable and of stable equilibrium. But, holding fast to this objective view of the terms employed, we see of course that the need of repair is simply dependent on the amount of disturbance or wear; that the unfatiguing and the fatiguing stimulation are not two distinct things which can be separately appraised, but are *continuous*, one being an excess of the other beyond the line where perpetual repair is possible. So that our formula seems reduced to "a maximum of getting up to the line with a minimum of going over it".

Cases where the formula is really applicable are those where several sets of nerve-fibres are concerned: for instance, we can speak of a surface covered with strips of the primary colours as inducing the maximum of stimulation with the minimum of fatigue; since here, while the eye ranges about, each colour affords a rest to the nervous elements stimulated by the other two; whereas the same surface covered by one of the colours, and stimulating a single set of elements, would cause a maximum of fatigue. Again, by improving the quality of a musical note, that is, by calling into play more nervous elements in response to the additional harmonic vibrations, we increase the general stimulation without making it anywhere excessive. But the case of single and simple phenomena, or single and simple parts of compound phenomena, is of course an entirely different thing; and here the only way in which we can get any scientific conception including the idea of "maximum of stimulation" seems to be by taking into consideration a new term—the time, namely, during which the stimulation lasts, and by substituting for "minimum of fatigue" the maximum of time during which the sensation is pleasant. Take the case of a fine musical note: if this be of only moderate strength, it can be listened to for a good many seconds with satisfaction: if, on the other hand, it be extremely loud, it may be pleasant for a moment, pleasanter perhaps to many people and in some states of the organism than the gentler note, but rapidly becomes almost unendurable. We may assume then that for any given state of a particular organ a particular period of stimulation has corresponding to it a maximum intensity of stimulation, which constitutes the condition most favourable to pleasure for that period. But the two factors obviously vary inversely[1]; if we increase the loudness of the note we diminish the time during which it is agreeable: and on the subjective side we have very uncertain and limited power of comparing things so heterogeneous as greater intensity and greater prolongation of pleasure; so that, if we ourselves cannot decide in what case pleasure is really most favoured, the physiological conditions most favourable to it become a somewhat indefinite object of search. Our two *maxima*, however, must clearly lie well within the points where, on the one hand, the amount of stimulation would reduce the time of possible pleasurable endurance of it to zero, and where, on the other, the length of time during which it was endurable would imply an almost inappreciable amount of it.

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[1] "Stimulation" is used throughout in a physiological sense, to express the movements which constitute the response of the peripheral nervous elements to physical stimuli.

To return to our formula. The use of the word "fatigue" seemed to lead to difficulties; but if we relegate it to its rightful place on the subjective side, there are doubtless feelings connected with the higher sense-organs to which it seems quite fairly applicable; and it is incontestable that the physiological counterpart of these feelings is an excess of stimulation in the organs concerned. But my main objection is of a much more serious kind; since, if substantiated, it connects the lax use of the word, not with a weakness or want of clearness in definition, but with a certain amount of failure in the apprehension and discrimination of facts. It will be best to state at once the point which I wish here to discuss. We find the word "fatigue" used to express the objective counterpart not only of what is *felt as fatigue*, *e.g.*, the too prolonged continuance of a loud note, but of what is *felt as discord*, an ultimate and wholly different sensation. The two objective phenomena agree probably in the general character of wear and tear as the two subjective sensations agree in the general character of unpleasantness: but, the natural supposition being that under this most general head the two former differ from each other no less than the two latter, is it not rash to identify them under a common name, when we should never dream of so confusing their psychical counterparts? Discord is not felt the least as fatigue: if then we give the name "fatigue" to the physiological counterpart of discord, are we not likely to overlook the extreme specialty which that particular form of wear and tear (if so it be) must possess, and to rest content with a most imperfect explanation?

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[1] They probably vary inversely in a very complex way. For the subjective phenomena, and doubtless therefore the objective, are *gradated* as the limiting instant is approached when pleasantness vanishes: and the steps of gradation, and the proportion of the whole time which elapses before the decline sets in, probably differ according to the degree of stimulation; that is to say, with change of stimulation the part of the time during which the sensation is purely pleasant may vary differently from the whole time during which its pleasantness remains above zero. The matter lies quite beyond the reach of experiment, as the subjective facts can never be rendered sufficiently distinct and isolated for accurate examination.

It is hardly necessary to remind readers of this journal that the sensation of musical tone is produced by continuous regular nervous stimulation, and that the sensation of discord is due to rapid "beats," that is, to a series of augmentations and diminutions of stimulation interposed in the regular series, and caused physically by the interferences of sound-waves of nearly equal lengths. The separate beats are as little present to consciousness in the pure sensation of discord as the separate vibrations in the pure sensation of tone: the sensation seems quite unique and beyond analysis. The manner of connecting the unpleasantness of the sensation with the theory of stimulation and fatigue is clearly shown in Chapter VIII. of Helmholtz's *Ton-Empfindungen*, which forms a convenient text for the objections I would venture to raise. He points out that a nerve is deadened by strong stimulation, and rendered less sensitive to fresh irritants: a rest, however, enables it to recover its sensibility, and the time of rest necessary in the case of the more delicate sensory organs is extremely short. Now the intermittence which beats cause in the stimulation gives the nerves an opportunity for recovery and repair during each minute period of interruption, and they thus present themselves to each fresh attack of the stimulus in a state of renewed nutrition and irritability. They are therefore subjected to a series of more violent shocks than in cases of unintermittent stimulation, and this violence, as Helmholtz holds, sufficiently explains the unpleasant sensation. He illustrates this position by the case of the eye, pointing out that by looking for even a moment at the sun the sensibility of the retina is so blunted that we see a dark spot when we turn our eyes to the sky; that on coming out of darkness into full daylight we first feel blinded, but the sensibility of our eyes is soon so far blunted that this degree of brightness is found very pleasant; and that so, "by the continuous uniform action of the irritation of light, this irritation itself blunts the sensibility of the nerve, and thus effectually protects this organ against too long and too violent excitement." Intermittent flashes of light, on the other hand, permit fresh renewals of irritability and so act with more intensity, and "everyone knows how unpleasant and annoying is any flickering light, even if it is relatively very weak".

With respect to stimulation so violent as that caused by looking at the sun, the statement that the blunting of the nerve-sensibility acts as a natural preventive of "too violent excitement" is surely too general. For, though the power of producing the subjective impression of *light* is at once considerably blunted, it would be rash to assume that the peripheral nerve-elements concerned in that impression play no part in the sensation of increasing *discomfort*, which would result if a person's eyes were forcibly kept open and exposed for a few seconds to the direct action of the sun. But anyhow here the stage of possible comfort is instantly passed: that stage in the eye's power of adaptation lies within a certain limit of stimulation. Thus, when the retina encounters ordinary daylight after total darkness, nervous wear outruns repair (that is, on the subjective side, discomfort is felt), until the stored-up superfluity of irritability has run down, so to speak, after which wear and repair go on equally. The stages of the shifting ratio between wear and repair might be roughly illustrated by a steel spring, which will yield and then remain steady under certain weights, but which, if the pressure be excessive, will rapidly pass all the positions of steadiness and snap; the limits of normal and reparable wear, the counterpart of agreeable sensation, corresponding to the steady positions of the spring. Under direct exposure to the sun, the snapping comes, that is, the molecular disturbance far outruns all chance of recovery in an almost inappreciable time. But this would happen whether the sensibility of the retina had been previously blunted or not: let us then neglect such violent cases, which tend to confuse the subject, and confine ourselves to the limits within which regular stimulation is the counterpart of endurable and agreeable sensation, as only here can the problem of intermittence and its effects be introduced.

Now, in trying to connect the unpleasant sensation corresponding to intermittence with *intensity* of stimulation, understood in the ordinary and natural sense, we at once come across a difficulty which is not removed by the undoubted fact that the intermittence enables the nerves in some measure to renew their irritability, and which may be illustrated by the following case:—Suppose that a person with good eyesight reads a book for half an hour by a strong and agreeable light, or looks for the same time at a bright landscape, or merely sits talking in a sunshiny room. The sensibility of his eyes is not to his knowledge affected by the process; for aught he is aware of, the page or the landscape or the room looks as bright at the end of the time as at the beginning, and the blunting of irritability must at any rate have been very small. Now suppose him to read a book or sit in a room illuminated by a much lower but still sufficient light, and let the light flicker. The discomfort will be very decided: but it seems impossible to make out that the normal kind of stimulation of the end-organs connected with sight is more *intense* here than in the former case. The stimulation has no no doubt been more intense than if the light, instead of flickering, had remained steady at its highest strength: but the light in the first case we considered was very much stronger than this; and in order to make out the intensity of stimulation or molecular disturbance in that first case to be *less* than in the second, we should have to suppose a self-protection amounting to a great and continuous blunting of the power of response to stimulus; and, as this would be represented in consciousness by the reduction of the page or room to darkness long before the expiration of the half-hour, the supposition is contradicted by facts. The subjective feeling of brightness was far greater at every instant of time in the first case than in the instants of greatest brightness, when the nerve-irritability was most thoroughly renewed, in the second: and the subjective feeling of brightness is the concomitant of a high amount of stimulation. It seems illogical then to imagine greater *violence* of stimulation in the second case. The question as regards the eye is complicated by the fact, to which Helmholtz does not call attention, that much of the discomfort caused by flickering is due to the perpetual *muscular* readjustments necessitated by the variations in the strength of the light. But if we agree to neglect this element, the proposed explanation could only pass muster in a case where the light, supposing it to be steady, was as strong as the eye could comfortably stand, in which case making it flicker and so permitting renewals of nervous irritability would send the sensation over the line of discomfort: if we look at a less extreme case, we seem driven to connect the unpleasantness not with *excessive* response of the nerves to stimulus, but with a special feature of *discontinuous* response, whether referable to perpetual stoppings or perpetual startings or both. We need phrases like "violence of stimulation" or "excessive response" (which are both better than "fatigue") to express the excessive molecular disturbances which would be caused by increasing the steady light on the page or in the room till it was disagreeably dazzling: we want another expression for the exceptional order of disturbance introduced by the repeated intermittences. It is not of course meant that the latter may not be in some way included under the general rule of wear and repair: but it is in itself a quite different species of wear from that involved in excess of the regular and normal stimulation. A man's frame will need repair after rolling a truck along rails for three hours, and also after setting it going, letting it stop and setting it going again, and continuing this jerky labour for an equal time: but the movements in space and the work done will be very different in the two cases.

When we pass to the ear the problem becomes much simpler and more distinct, for several reasons. First, we get rid of the irrelevant element of *muscular* fatigue, caused by adjustments of the pupil to varying degrees of light. Secondly, the visual intermittences are felt *as such*, and the confused feeling of discomfort may seem fairly describable by the word "fatigue"—especially under cover of the associated muscular feelings, whereby the difference from the normal fatigue caused by excess of light is necessarily much disguised; whereas in discord the intermittences are not perceived as such, but give rise to a new sensation to which no one would dream of applying the name "fatigue". Again, confusion is avoided in the case of the ear by the organ's very limited power of self-adaptation. For the ear seems little liable to anything analogous to being first dazzled (like the eye in emerging into daylight from the dark) and then getting its sensibility blunted to the comfortable pitch which represents eqilibrium between wear and repair. Deafness of course ensues from prolonged exposure to excessive sound, but this is owing to real structural injury: and in the case of musical tone,[1] at any rate, I do not think it is ever the experience of a healthy ear to find a single sound intolerably loud for a few seconds, and then to get reconciled to it; whenever it is disagreeably loud to begin with, it gets worse.

Let us now take two means of stimulation for the ear analogous to our former two cases of the strong steady light and the weaker flickering light: they will evidently be a loud single tone or concord, and a soft discord, say a very loud octave and a very soft discord of a semitone, played on a finely-toned organ. The former is of course felt as pleasant, the latter as unpleasant: and in consistency it is sought to connect the former sensation with a lesser and moderate amount, the latter with a greater and violent amount of stimulation. But the actual physical stimulus is obviously very far greater in the case of the loud concord than of the soft discord: the whole burden of the explanation must therefore be thrown on the other factor of stimulation, namely the degree of irritability or molecular instability in the organs concerned. First, then, with respect to the loud concord, in order to make out the stimulation in the case of this, the *greater*, stimulus to be *less* than that caused by the soft discord, we should have to suppose the sensibility or power of response to be very greatly and rapidly deadened: but we have sufficient proof that the nerve-elements are performing their functions in a highly vivacious and persistent way in the fact of our continuing to hear and appreciate the sound for many seconds just as perfectly as we did at first. Secondly, with respect to the discord, we can take this as soft as we please; so that the relation of the perpetually repaired organs to the intermittent stimuli is not analogous to that of an eye brought from darkness into daylight, but brought from darkness into obscure twilight; and in such a case "intensity of stimulation" ought not in reason to outrun the conditions of agreeable sensation. For, looking at our two factors of stimulation, we see that it is only the amount of stimulus which can be indefinitely varied, and there is an obvious limit to the extent to which we can draw on the other factor, that of irritability dependent on nutrition. The perfection of nutrition and repair cannot be more than perfect; it cannot be carried, cannot therefore carry irritability, beyond a certain natural point; so that, however unstable be the condition of maximum irritability, we ought by diminishing the strength of the physical stimulus to be able to avoid causing wear to outrun repair. While, granting of course that the greater the irritability the less the stimulus which will suffice to cause the amount of stimulation corresponding to *unpleasantness*, we still know that the amount of stimulation which normally corresponds to *pleasantness* is a very considerable one: and we cannot postulate the perpetual renewal of such a miraculous amount of irritability as would be required to bring stimulation up to and far beyond this point even under the action of a very weak stimulus. The intermittent stimulus produces, according to Helmholtz, "a much more intense and unpleasant excitement of the organs than would be occasioned by a continuous uniform tone". More unpleasant certainly: but the assumption is that it is more unpleasant simply *by dint of* being more intense, however soft the sound, in face of the fact that more intense excitement still, caused by a much greater stimulus acting regularly on organs which are proved by the concomitant sensation to remain perfectly responsive and undeadened, is felt as pleasant. And over and above all this, if it *were* more intense in the manner imagined, it ought to be felt as *loudness*: "loudness," as Mr. Grant Allen himself remarks in one place,

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[1] With respect to extremes of non-musical sound, opinions may vary. The getting accustomed to such an extreme, in the sense of gradually becoming able to distract attention from it, hardly implies that the acoustic sensibility has been deadened. Here again it is almost impossible to isolate the phenomena sufficiently for experiment.

"is the subjective concomitant of intensity in stimulation". And the sensation of loudness has absolutely no relation to that of discord, which retains its unique character even when barely audible.

In this connexion I may quote an illustration given by Helmholtz, which seems to me delusive. He says, "If a tuning-fork is struck and held at such a distance from the ear that its sound cannot be heard, it becomes immediately audible if the handle of the fork be revolved by the fingers. The revolution brings it alternately into positions where it can and cannot transmit sound to the ear, and this alternation of strength is immediately perceptible by the ear. . . . Just as this alternation of strength will serve to strengthen the impression of the very weakest musical tones upon the ear, we must conclude that it must also serve to make the impression of stronger tones much more penetrating and violent than they would be if their loudness were continuous." No doubt a change or movement serves often to direct attention to feelings which when uniform were too slight to be noticed: a change even to a lesser degree of stimulation might have this effect, if the attention had got deadened by the monotony of a prolonged impression. But the change here described by Helmholtz would be consciously perceived as a *change of loudness*. In just the same way, with a very much greater strength of tone, if the alternations were slow enough to be perceived as separate, they would be recognised as alternations of loud and soft sound, the loudness unless very extreme being in no way unpleasant. Now by artificial means we can introduce into a single continuous tone, that is, into a simple series of regular stimulations, an intermittence similar to that produced by natural interference in the compound series, whose counterpart in consciousness is the sensation of two discordant tones. Let us then, by way of getting a new point of view, suppose the alternations to get faster and faster till they merge in consciousness into one continuous sensation. What quality or qualities should we expect this sensation to have? We know that there has been no change in the nature and amount of the respective physical stimuli as they gradually got crowded nearer together: *a priori* therefore we find no reason to suspect much change in the nature and amount of the physiological response to each of these stimuli: and hence we should expect that the psychical representative of this response would continue to be the sensation of loudness up to the end of the process. And such we find by experiment to be the case: the quality of loudness remains when the sensation has become single and unintermittent. But experiment reveals another quality which we could not have predicted: the sensation is not one of loudness only, but is distinctly unpleasant and jarring. Again, if we made the experiment with a soft sound, the rapid alternations of strength, when merged in one sensation, could only bring its loudness up to the low level of what were its louder parts when it was felt as intermittent; but the same jarring quality would be experienced as in the other case. And just so discords, when soft, give a sensation which is not "penetrating and violent," but disagreeable in a special and unique way. The following consideration may set the difficulty in a still clearer light. A continuous low note, having say 120 vibrations to the second, is pleasant: a higher note of equal apparent strength with several thousand vibrations to the second, having its regular series of vibrations interrupted 120 times every second, is unpleasant; so is a discord of two high notes with the same number of beats and interruptions. But here the periods given to the nerves for renewal of irritability are *equal in number* in the two cases of the unpleasant and the pleasant sensation. What right then have we to account for the contrast by speaking of the stimuli as "wastefully attacking the fibres and end-organs concerned" (to quote Mr. Grant Allen) in the one case, and as blunting and so protecting them in the other?

I will adduce only one more argument. If the same kind of stimulation, when excessive, caused the unpleasant sensations both of over-loudness and of discord, those who are able to experience one ought, under the appropriate conditions, to agree in experiencing the other. But it is very common to find that of two persons who are equally susceptible of annoyance from over-loudness one is keenly sensitive to discord and the other totally unconscious of it.

To sum up. The disputed view, when clearly drawn out, implies variety in *degree*, but not in *kind*, of the stimulation proper to the several end-organs. This stimulation is felt as pleasant up to the point at which nervous wear begins decidedly to outrun repair; when it is felt as unpleasant this point has been passed. The point itself is supposed to be the resultant of two factors: one is the amount of the physical stimulus, which must be called excessive, in relation to a particular state of the organs, whenever the action cannot last for an appreciable time without seriously disturbing the balance between wear and repair: the other is the degree of nutrition and consequent molecular instability in the organs concerned, which must be called excessive, in relation to a particular amount of stimulus, if discomfort is experienced under the action of an amount of stimulus which at other times may be found quite pleasant. We took cases where one sensation was pleasant and another unpleasant, in spite of much greater violence of stimulus in the former case: and to account for this according to the theory recourse was inevitably had to the second factor—the irritability of the nerves, supposed to be deadened in the former case, perpetually revivified in the latter. We objected to each feature of the explanation: to the *deadening* in the case of the continuous tone or concord as being contradicted by the continued vitality of the subjective feeling; to the *revivification* in the case of the discord (α) as needing often to be miraculous in degree in order to account for the facts, (β) as bound, so far as it did occur, to produce the normal concomitant of intensity of stimulation—loudness, and not something quite different. Next, we found a case where a pleasant and an unpleasant sensation were produced under conditions which, as regards opportunity for renewal of irritability, were identical. Finally, we showed that, whereas sensations depending on precisely the same physiological facts ought to be equally awakenable under the appropriate stimuli, cases were common where one was so awakenable and the other not. We seem thus driven to assume the existence of some other *kind* of nervous disturbance, connected specially with interruptions supervening on a mode of motion which has been sufficiently established to become, so to speak, familiar. We find an illustration, perhaps even a true analogy, in the effect of interruption of any regular rhythm which is being watched by the eye or ear, or produced by our own voluntary muscular actions. In this comparison whole sense-organs, and actions slow enough to be consciously and completely followed, take the place of the infinitely minute nervous elements and infinitely rapid movements we have been considering. And here we assuredly should never think of accounting for the unpleasant sensation by "intensity of stimulation," the feeling of being baulked and disappointed being totally different from that of over-strain or fatigue; not more different, however, than is the feeling of discord from the oppression of excessive sound. If the new and special phenomenon, in either the illustrating or the illustrated case, is to be brought on the objective side under the general rule of wear and repair, it must probably be by supposing energy to be stored up ready for discharge, which, when the regular and established stimulus does not come, is discharged unnaturally, so to speak, and against resistance: as Mr. Grant Allen well expresses it with regard to rhythm, "if the opportunity for the discharge is wanting, the gathered energy has to dissipate itself by other channels, which involves a certain amount of conflict and waste". If the suggested analogy be applicable, we may imagine the new phenomenon of discord to appear in consciousness as soon as the frequency of the baulkings, or whatever we are to call them, has become sufficient to bring this sort of conflict up to a certain pitch of intensity.

I may just remark, in passing, that this case of discord serves well to illustrate in how extremely small a degree considerations of peripheral nerve-stimulation can really penetrate into the secrets of artistic beauty. A discord is always a discord wherever it occurs, and has the same wearing effect on the peripheral organs: but the action of the higher co-ordinating centres so overrides the natural character of the sensation as to convert it into an all-important feature of modern music, the simplest bit of which is often crammed with discord.

A few words may be added on the subject of colour-discord. To put a simple case: why is immediate juxtaposition of orange and vermilion on one surface disagreeable? Mr. Grant Allen tries to bring such facts under his general formula on the ground that the same class of optic fibres is stimulated by each of the two colours, and that over-stimulation therefore ensues. But if the orange part were vermilion, like the other, stimulation of the same class of optic fibres would be carried still further and a still greater degree of over-stimulation would result, whence we should logically expect an intensification of the same subjective feeling. This objection is in fact the one which Mr. Sully made in his review of Mr. Allen's book in this Journal, and his *reductio ad absurdum* was perfectly sound, that "it would follow that the same colour spread over a large surface would produce the pain of chromatic dissonance in its maximum degree". To this Mr. Allen replied that though all dissonance is fatigue, all fatigue is not dissonance. No: but even if we could conceive for the moment that the lesser stimulation, being still excessive, was cognised as a special form of discomfort—*colour-discord*, while the more excessive stimulation was cognised as the normal discomfort known as *fatigue*, what are we to say if we find a case where the feeling of the lesser stimulation answers to the above description, but the feeling of the greater is not fatigue but *pleasure?* If "fatigue" is one in kind (as the old formula and the arguments in support of it throughout imply), how will Mr. Allen explain the fact that we are annoyed by a mixed mass of pink and scarlet geraniums, but are pleased by an equal mass of the flowers when they are all scarlet, seeing that the conditions are more favourable to "fatigue" in the latter case? He adds: "What would Mr. Sully say to a person who argued that on Helmholtz's principles one and the same note continued for a long time would produce in the maximum degree the pain of musical dissonance?" But this remark, proposed as an absurdity, really suggests the very difficulty which I have found in accepting Helmholtz's principles of musical dissonance as complete: and indeed the remark has its exact parallel and converse in the argument which forms the gist of the present paper. I have argued that, on the theory that stimulation is one in kind and only varied in degree and is completely expressible in terms of intensity, it is impossible to explain how it happens that its subjective concomitant in certain cases is an impression not of loudness but of discord: conversely, had I taken discord as the chief and central phenomenon, the fact with which I should have confronted the theory would have been that the feeling of the stimulation due to a loud continuous note is unaccountably not discord but loudness. The above remark proposed by Mr. Allen may in fact be used as a *reductio ad absurdum* of the view he adopts on musical discord exactly parallel to Mr Sully's *reductio ad absurdum* of his view on colour-discord. Mr. Sully, after his criticism on this point, adds: "We do not say that these disagreeable combinations may not be brought under such a principle of painful stimulation as that laid down by Mr. Allen, but if so, it must be effected in quite another way." This appears to me to be a suggestion parallel in kind to that advanced above as to the supervention, in cases of intermittent nervous stimulation, of some special kind of dissipation and disturbance: but if such facts really exist in the case of discordant colours, they are probably of a much more obscure kind, since they can hardly depend on anything so simple as interruptions of an established rhythm.

Two further considerations may be mentioned which tend to discredit the view that "fatigue" or excess of normal stimulation is a sufficient explanation of colour-discord. First, to return to our example of vermilion and orange, the special unpleasantness ceases when the one is made to shade off into the other: and yet here again the same optic fibres are used to a greater extent, as the eye passes and repasses along the surface, than when it was more restrictedly occupied with the dividing line where the two colours lay side by side without gradation. Secondly, the briefest time will suffice for the unpleasant sensation to be felt. This is an objection which we are precluded from urging in the case of note-discord, because there the "fatigue" was connected with intermittences of which a large number occur in a second: but colours, however discordant, cause no such intermittences, and the "fatigue," if such it be, ought in reason to grow by gradual and sensible degrees, just as it would in the case of a single bright colour when looked at continuously. All things considered, one is led to guess that the extent to which explanations resting on peripheral nervous conditions apply to sensations of colour-discord and concord must be very limited. They may cover, for instance, such broad effects as the obviously resting action of complementary colours, which affect different fibres: but one seems more and more driven to refer the more delicate shades of feeling to associational and intellectual elements. This must be the case even with single colours which are not bright, stimulating or fatiguing, and can be looked at for a long time without serious discomfort, but which are simply ugly. Again, it is impossible to abstract the colour from the object; and even beautiful colours displease us in inappropriate and unusual positions. Such associations, however, as we can consciously discover will often be found provokingly insufficient if pressed as explanations. For instance, the pleasantness of the gradation from bright red to orange, as compared with their immediate juxtaposition, might perhaps suggest a connexion with the frequency of such gradation in nature, as for example in sunsets. But then we also continually find in nature a total absence of gradation in nearly related tints whose juxtaposition is nevertheless felt to be delightful; as in looking at a light blue sky through blue-green leaves. And indeed a slightness of divergence in colours often seems the essential feature of their *harmony;* whence a new difficulty in accepting as final and complete the view that "those combinations produce discord which successively stimulate the same class of structures". And these experiences of colour-effects often occur in isolated acts of observation without any relation to surrounding conditions; so that they cannot possibly be explained on the same grounds as the presence in music of sound-discords, which are enjoyed as parts of a complex and *organic* whole. Such considerations are almost enough to make one despair of anything like an exact and complete *rationale* of colour-discords and affinities: it would at any rate lie far beyond the scope of any conceivable formula.

EDMUND GURNEY.

III.—THE DIFFICULTIES OF MATERIAL LOGIC.

IN a notice of Mr. C. Read's *Essay on Logic*, published in MIND XII., some remarks were made upon the possibility of a purely objective treatment of the science. There was not then space for an adequate discussion of the subject, but it seems sufficiently interesting and important to deserve fuller examination.

That neither Logic nor any other science can possibly be regarded as being out of relation to the human faculties, we are presumably all agreed. Its necessary relativeness, in this sense, is universally admitted. Things are what they are to our faculties; their attributes are at bottom merely certain ways in which they affect *us*. Objectivity in this sense and under these restrictions is of course not confined to Logic, but is common to every physical science. In the physical sciences it is assumed so much as a matter of course by all investigators and expounders that it is seldom considered necessary formally to enunciate it. In Logic alone it deservedly obtains more explicit recognition; partly because traditional feeling and associations had for the most part conspired to give another aspect to the treatment of the question, and partly because in any abstract or universal science philosophical inquiries become appropriate which would be very much out of place in the hands of more special investigators.

The best exposition perhaps of this view, in a few words, is that of Mr. H. Spencer, who draws the following distinction between the Science of Logic and the Theory of Reasoning:—"The distinction is, in brief, this, that Logic formulates the most general laws of correlation among existences considered as objective; while an account of the process of Reasoning formulates the most general laws of correlation among the ideas corresponding to those existences."

That the view of Logic in which it is regarded from the objective standpoint instead of from that of the conceptualist, is the essentially sound view, I most cordially recognise. It seems indeed to me that nearly all the interesting and valuable additions that the science has received at the hands of Mill, Mr. Bain, and Mr. Spencer himself (to say nothing of others), have originated in the more or less consistent adoption of this mode of treatment. But still this view as expressed by Mr. Spencer seems to me rather an ideal towards which we are to aim, than a goal which we can consider ourselves to have attained. The sense in which this remark is to be understood must of course be gathered from the general substance of this article, the object of which is to point out that if we were to adhere rigorously to this objective view, we should be forced into one or other of two alternatives. Either we should have to support our position by the aid of conventions and assumptions, the number and importance of which have never been sufficiently realised, or we must make room for a *third* science which will have to stand somewhere between the two mentioned above by Mr. Spencer, and which will contain a very large portion indeed of the material which has most educational interest and value, and which has always gone by the name of Logic.

To prevent any possibility of misunderstanding, as we are forced to use somewhat ambiguous words, it may not be amiss just to remark that the objectivity here referred to does not in any way imply acquaintance with more than phenomena. The contrast before us here is not that between things in themselves and things as presented to us, but merely between the more perfect and accurate knowledge of them and the less perfect and accurate. My knowledge of the 'thing' is very inaccurate and defective; this imperfect presentation of it is my conception or idea of it, and we term it subjective. But suppose this knowledge, always within the range of phenomena, developed and perfected to the utmost attainable degree; let it be determined with all the accuracy which present or future methods of measurement may invent; let this knowledge receive the final and general assent of mankind,—and we should then have obtained what we may call objective knowledge. We should know the thing itself as well as beings with faculties at all resembling those which we possess could ever hope to know it. In a word this knowledge thus rendered final and general *is*, for all practical and speculative purposes, the same thing as the sum-total of "existences considered as objective" which, according to the above extract, is to be regarded as the subject-matter of Logic. This is the sense in which I presume that the objective existences with which Logic has to deal would be understood by most writers at the present time; it is certainly the sense in which they will be understood in this essay.

It is obvious enough to every one that any such attainment as this of objective knowledge is at present indefinitely remote. But the bearing of this state of things upon the practical treatment of our system of Logic has never, so far as I know, been systematically worked out. Few persons, I imagine, have an adequate conception of the number of assumptions, or at least of conventions, which are forced upon us at one point or another if we wish to render our system consistent and homogeneous.

One of the earliest occasions upon which we thus have to decide a convention is in connexion with the *existence* of the objects which we name. This is forced upon our notice directly we discuss the denotation of names in an objective system of Logic. Names, we are told, are the names of things, not of our ideas of things. This is all plain enough in the great majority of cases, for the sharp distinction between the thing and our mere idea of it corresponds well enough with the equally sharp distinction between what is universally accepted as existing and what is universally rejected as such. But then what an amount of summary legislation is needed to sweep away all the intermediate shades of truth and certainty, and to leave nothing but plain black and white. Three hundred years ago the dragon and unicorn were 'things' in this sense, and the black swan was not; now their positions are reversed. Is the sea-serpent a thing?

It is not for a moment suggested here that difficulties of this kind are of any very serious nature in principle, but merely that they mar the symmetry of our system by demanding conventions which the pure theorist would gladly avoid. The conceptualist logician is not troubled by them, for the only denotation of a name which he cares to entertain is a potential one, but the opposite party cannot thus evade the question. Those who say that names are the names of things, who support this decision by a pointed distinction between real and imaginary names, and regard the definitions of these as having respectively different interpretations, *must* have an opinion—not necessarily as to the limits of any given denotation, but at least—as to whether there really be any denotation or not. Thus as to the 'existence' of these doubtful or disputed things. Beyond all question they do exist or not. Some day we shall have made up our minds on every point of this kind, and may find it advisable to print, say, the names of all imaginary things in italics so that the simplicity of early youth should never be misled by the creation of wrong associations. But meanwhile, since we do not know, that is, cannot agree finally amongst ourselves which of these two alternatives is true, we are forced into a difficulty. Either we must give up our doctrine that names stand for things; or we must admit that a 'thing' need have no actual existence; or we must, by an exercise of summary jurisdiction, decide from time to time what does and what does not exist; or we must exclude from Logic all consideration of names and their significance. The first of these alternatives would be tantamount to abandoning our case, as it would so far imply adhesion to that subjective view of Logic which we are supposed to reject. The second would soon lead to an overwhelming invasion of mythical and fanciful objects. The gradations between what was once universally accepted; what was accepted by a large party; by the thoughtful few; invented consciously by some but believed in by others; believed in by the ignorant generally, by particular sects, by a few and so on,—are far too refined to admit of appreciation. If, for instance, we opened the door so as to admit within the denotation of 'animal' any creature whose existence was affected by the slightest doubt, we should find it hard to shut it till they had all effected their entrance, not the dragon only, but all his congeners down even to the Jabberwock and the Snark. The fourth of the above alternatives would doubtless save all trouble of this kind, but he would be a bold logician who should attempt to treat Logic after he had ridded it of names. The remaining alternative is really the only one available. We have to rule, from time to time, that such and such things do exist, and that others do not; and we have to do this with the decisiveness of a judge who feels that a definite settlement of the question is far more important than a settlement in accordance with strict justice. That is, we have as logicians, when asked to declare what is the denotation of any term, to draw a clear line dividing entities into the real and the imaginary, and to forget that any such arrangement is altogether relative, not merely to the age in which we live, but in some respects to the society with which we happen to mingle.

The difficulty just mentioned may seem to have risen mainly from that perversity or indolence of men which would continue to invent and believe in such multitudes of fictitious entities as to have done a good deal towards obscuring the very distinction between truth and falsehood. But we must notice another now, which arises from the constitution of things rather than from our folly in looking at them. Take the case of a class-name, where the existence of the objects corresponding to that name is unquestioned. What objects exactly does it apply to or denote? All that possess the attributes implied by the name? True, but not enough: it will be almost universally admitted that we must extend this denotation so as to include all the objects which ever have, or ever will come, under the name; for not so to extend it would be to introduce a very narrow degree of relativeness indeed, and to make the application of the name changeable from instant to instant. But then what if these attributes undergo a change in course of time, as all must admit to happen within limits in certain cases, and as every evolutionist will claim to happen without limit in almost all cases? The name cannot then apply to every individual in the indefinite succession of objects, but only to a certain number out of the whole succession, that number being greater or less according to the rapidity of change in the type. But then what we may call the centre of the limited selection which is thus forced upon us is necessarily determined by the accident of our position in time, and accordingly is relative to this. The total range of applicability of the term 'horse,' for instance, is not coextensive with the whole ancestry and posterity of the present animals so called, but can only be regarded as extending a certain way backwards and forwards in time. At what points then does it stop short? At points determined by a two-fold relativeness: first, that depending upon the magnitude of variability which we are prepared to admit as being covered by the term. This decides, so to say, the *length* of the piece which we cut out and retain from the infinite succession. Then, secondly, there is that which depends upon the particular point of the stream opposite which we logicians happen to be standing at the present time. This decides, so to say, the position of the *centre* of the piece thus selected.

The points above insisted upon may seem to some, when thus stated in their generality, to be somewhat fanciful and over-refined. But they will soon cease to seem so when it is pointed out how seriously their decision, one way or the other, affects a number of the details of his science with which every logician is bound to occupy himself. We will examine some of these details successively without troubling ourselves much about the exact order in which we take them.

The formal logician, of course, recognises no distinction between the potential and the actual constituents of a class; or rather, being occupied with the form and not the matter, it is no concern of his whether there really be any such constituents. In every subdivision therefore of classes produced by dichotomy or otherwise, he regards each compartinent as equally occupied in a logical sense, because we may conceive objects possessing the requisite particular group of attributes. Similarly he maintains that connotation and denotation must necessarily vary together, because any alteration of the number of attributes taken into account corresponds to a potential variation in the range of application of the name. On both of these points the objective logician is apt to take him to task, on the ground that he is neglecting the teachings of nature: that he ought not to try to fill his class-compartments unless he can actually find the wherewithal to put into them; that he must not assume that the more the attributes taken into account the fewer will be the things possessing them, unless he has actually ascertained that in the cases in question nature does not group her attributes in bundles of her own selection, the whole bundle being present or absent together. But surely, if we insist upon his carrying out his own view with rigorous consistency, we should find that both these grounds of objection fail from beneath him. The entire range of denotation must be regarded as almost infinite, since it is not restricted to present existences. But, clearly, when we assign an infinite range, the actual and the potential become much about the same thing, According to well known results of the Theory of Probability, to say that anything is possible, or that it may happen, is equivalent to saying that (within the scope of sufficiently extensive experience) it is occasionally actual, that there are circumstances under which from time to time, however rarely, it does happen. And, apart from that Theory, it is clear that almost all negation is made under certain conditions of time and space, which will be evaded by sufficiently extending our range. Accordingly hardly any subdivision of the possible is doomed to be eternally empty. The utmost we dare say is that it is unfilled at present, and will be found to be unfilled within a reasonable range about the period occupied in time by us of the present day. With this relative restriction our arrangement will hold well enough.

Turn now to examine some of the corresponding questions which suggest themselves in the case of Propositions. We shall find ourselves encountered here not only by the difficulties already touched upon under the head of Terms, but also by some additional ones as well. They are the difficulties which inevitably attend upon us when we are discussing by implication the existence of things, even when that existence is merely of the phenomenal kind with which alone we are here concerned. When, for instance, we say that 'All A is B,' do we imply the existence of A and of B? Certainly we do; for otherwise the proposition would not be a true one; or rather, by not saying that existence is implied, we should be losing our hold of that distinction between truth and falsehood, between well- and ill-grounded belief, which it is the main prerogative of an objective Logic to keep clearly before us. Now take a negative proposition, 'No C is D': how about the existence of C and D here? It is clear that C must exist, for otherwise there would be no meaning in denying D of it. But then this leads at once to the admission of the existence of D also, unless we abandon the right of conversion, for at any time by simple conversion we might change D from predicate into subject. And this has further implications if we claim our undoubted right to contraposit a proposition. From 'All A is B,' we obtain at once 'No not-B is A'. Is this legitimate? If it is, then we draw the conclusion that every term in a true and lawful proposition has something existent corresponding not only to it, but also to its contradictory as well. Experience of course would not quite justify us here, for take the proposition 'No object possesses a temperature below 280° C'. The very meaning of the proposition denies the existence of its predicate.

It is clear therefore that what we really do is to take a licence or make a convention for convenience sake. If we chose to adhere to our strict logical view with punctilious accuracy, we should have to lay down our rules somewhat as follows:—In an Affirmative Proposition the subject and predicate distinctly imply the existence of their objects; but, as we must appeal to experience to make sure of the existence of their contradictories, we have no right without due inquiry to contraposit such a proposition. In a Negative Proposition the subject must exist, but not necessarily the predicate (for negation does not carry existence with it). Accordingly we have no right without due examination even to convert a negative proposition.

There is a confirmation of this afforded by the doctrine of the Quantification of the Predicate. If there is any one who ought not to have adopted this doctrine, I should say that it was Hamilton, as it peculiarly belongs to the objective view. If we look to the subjective side, I should say with some confidence that we do not as a rule quantify the predicate, and with still greater confidence that we ought not to do so. In certain exceptional cases the form of the sentence decides this point, but in general there is nothing in the form to show whether we are referring to the whole or a part of the predicate; if therefore we render this quantification definite, we are outstepping our data unless we make a renewed appeal to experience. Objectively considered, of course, the subject is or is not coextensive with the predicate, but we have no means at the time, without a daring assumption, to decide which of the two alternatives is true. This comes out very clearly when we adopt Euler's symbolic method of representing propositition by means of intersecting or including circles. This being a representation of the relations to one another of the things themselves and not of our probably imperfect conceptions of them, we *cannot avoid* quantifying our predicate by the way in which we choose to draw our circles; though we often try to avoid committing ourselves by the subterfuge of drawing lines only dotted in part.

Turn now to the consideration of Hypothetical Propositions. Rigorous consistency ought, I suppose, to exclude them from an entirely objective Logic. Their real *differentia* is to express human doubt; where certainty is felt, no 'if' could have a right of entry. Doubt clearly affects the subject only, and has no relation to the object. 'If men were prudent their meals would be frugal'; this sentence when duly objectified is turned into 'all prudent men eat frugal meals'. Logically the two statements are identical, except in so far as the former gives expression to a certain tinge of doubt as to whether any men of that degree of prudence do exist. If we know that they do exist, the logician ought by rights to employ the categorical form; if we know that they do not, then he has no right to utter the proposition within the domain of a science whose function it is to express and accumulate truth and certainty.

Will not this consideration, by the way, help to clear up the frequently expressed doubt as to whether the so-called hypothetical reasoning is or is not really inference? 'If A is B, then C is D; but A is B; therefore C is D.' What probably gives rise to the opinion that there must be inference here is the conviction that the supposed premisses and conclusion are not the same thing exactly, whence it seems to follow that one must be inferred from the other. That they are not exactly the same must be admitted, but the only difference appears to me to lie in the fact that the premiss expresses a relation affected by a doubt, whilst the conclusion expresses it without a doubt. Of course, if the removal of this doubt depended upon anything within the limits of the given propositions this would amount to reasoning; but it is not so, the doubt being clearly removed from some extraneous source. It is merely as if we said, 'I think A is B,' and then, owing to the intervention of some information or observation, corrected ourselves by saying, 'Certainly A is B'. Nothing would be thus added to the contents of the proposition, but there would merely be, from some extraneous source, a gain of certainty in entertaining it. So with our hypothetical reasoning above. If we had no doubt about the truth of our premiss, we ought not strictly to have put it into the hypothetical form, but to phrase it 'Every time that A is B, C is D,' or in some such form. The conclusion is then obviously no reasoning, but either the repetition of the same fact over again (if we say generally 'A is B') or of a part of the same fact (if we say particularly 'This A is B'). In the former case it is merely restatement, and in the latter it is one of those partial restatements termed immediate inferences.[1]

Such a result as the above ought not to surprise us, for it is surely only natural that anything which has to do with doubts entertained by us about objective facts (the essential characteristic of all hypothesis) should in strictness be excluded from a thorough objective treatment of Logic, and, for that matter, from a thorough conceptualist treatment also. From the former it is excluded because the facts themselves being certainly one way or the other, the doubt about them must be purely subjective and relative; from the latter it ought to be equally excluded, because our mere notions when uncorrected by appeal to fact can never have that experimental certainty which is the necessary contrast to hypothesis. The distinction between fact and supposition is equally lost whether we regard all or nothing as fact, whether we look only to the things or only to our notions about them.

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[1] There has been too much discussion of the nature of Hypotheticals for the above remarks to be regarded as anything more than hints for the readers of this Journal. The Editor in a former number (No. IV. p. 216), drew a distinction between the 'if' of doubt and the 'if' of inference. That this distinction exists practically, that is, that we frequently throw into the form of a hypothesis propositions of which we entertain no doubt, I should fully admit and maintain. But it will readily be seen that what I am discussing above is rather the position and function of these 'ifs' under a system of rigid stringency, than the uses to which we put them under ordinary circumstances.

That any theory of Definition must stand in need of a considerable amount of assumption or convention is only too obvious, but I think that the nature and significance of this assumption is constantly underestimated. The definition of a term, it will be commonly agreed, is the enumeration of its essential attributes; that is, of the attributes connoted by the term. But when we ask, What *are* the attributes so connoted? we get into a difficulty. These attributes regarded in themselves are of course indefinitely numerous; even the number of those which distinguish one class from a neighbouring class are often too many for enumeration. We are obliged therefore to take a limited selection of them to comprise the connotation. How important is the nature of this selection, for logical purposes, will be seen at once when we consider that the entire decision of the mutual relations of genus, species, difference, property and accident, as well as the distinction between essential and accidental propositions, all turn upon the meaning we assign to the 'connotation' of a term.

It appears to me that the only tenable course is to admit at once that the connotation is determined by conventional agreement as to what are the attributes in question. This convention of course is not an arbitrary one, but rests upon what is generally considered to be the 'importance' of the attributes. This is clearly a relative and provisional interpretation; for the convention will never obtain universal adhesion, but will depend mainly upon the opinions of the well-informed, and it will inevitably change from time to time under the impress of varying theories and gradually advancing knowledge.

It needs, I think, but little inquiry to convince us that a purely objective interpretation of the connotation is impossible. Let us examine some of the attempts in this direction. We need only notice, to reject, the statement that the essence of a thing is 'that without which it would cease to be'; for what sort of injury a thing can undergo without fatal consequences will depend upon its own toughness of constitution. The statement is really nothing but a somewhat realistic paraphrase for the much more rational one 'that upon the loss of which we should cease to apply the same name'. A far more plausible account is given by saying that the essential attributes (that is, the connotation) comprise those primary qualities from which the others may be deduced. There are, however, two objections to this. In the first place it does not meet the very common case, of which the species of Natural History are an instance, wherein a number of attributes seem to stand each on its own independent footing, so that we cannot point to a few of them as being the source and origin of the remainder. But there is another important objection behind, which will perhaps need some exposition. What is called dependence often means merely dependence by inference, not by physical consequence and succession; in other words, a subjective not an objective dependence. Dependence by inference is clearly relative not merely to the amount of knowledge of the age, but to the theories in accordance with which that knowledge is grouped and arranged. It is very possible that by a change of point of view in science two attributes should each shift into the place of the other in this respect, so that that which was at one time the dependent one becomes, by the new mode of treatment, the independent one. Every one can see, by reference to works of different dates, how decidedly this is the case in Geometry and Mechanics. In fact it presents itself as a practical difficulty to the examiner that propositions, which on one mode of treatment are simple corollaries, perhaps even axioms, are on another mode only obtainable after several steps of deduction. What, to take one simple example, is the independent, and what the dependent, characteristic of parallel lines?

If it be urged that the Natural Kinds of Mill afford a strictly objective specific distinction, the first answer would be that even were the existence of these kinds admitted, they would only partially meet the difficulty. It will hardly be contended that they can be sought for except amongst the species of Biology or amongst simple substances; and in each of these departments they are having to undergo a criticism which will sorely try them. In the one case they have to settle accounts with the Darwinians and in the other with the molecular theorists, and from neither party are they likely to find much mercy. Even if we confine our attention to the present time, without projecting our vision towards the changes indicated in the remote past or future, we shall find that the considerations suggested above cannot be neglected. Those present distinctions between one species and another are undoubtedly deep and important, and it is absolutely necessary to recognise them in any system of classification; but it appears to me that Evolution, once admitted, tends not merely to erase these distinctions in the remote distance, but also to shed a light upon them in the present which greatly modifies their significance. Grant to the fullest the objective nature of the distinguishing attributes themselves, yet their relative 'importance,' and therefore the particular selection to be made from amongst them for purposes of definition, must depend upon subjective considerations. Not merely is this relative importance determined by the particular needs, or stage of knowledge, of the current generation, but a change of general theory may create as much disturbance amongst their relative ranks as one of dynasty would in an Oriental monarchy. If I mistake not, the present disposition of advanced biologists is to regard structure as of much more importance in classification than function; the purposes, that is, to which different organs may be put are widely modifiable by external circumstances. If therefore we look merely to the magnitude of the differences between individuals we should make one arrangement; but if we seek to trace out actual relationship we shall make a very different one, by attaching the importance to underlying structural affinities which would otherwise be very indifferent, and neglecting those which may be very striking. If Evolution in its present form be a final theory, then no doubt we may have got at something like an 'objective' connotation of some of our class-terms, but only on this rather bold assumption.

The foregoing considerations might be pursued in detail in many other directions, but what has already been said may suffice to illustrate the general proposition with which I started, *viz.*, that we cannot regard an entirely objective treatment of Logic as anything but an ideal from which we are at present indefinitely remote. In speculation, no doubt, we can make a clean split between the objective and the subjective, and set them apart over against one another. But if we look to the practical necessities of life and the actual processes of thought, we shall find that it is in the intermediate layer of tissue, if one may so say, that all the vital processes of growth and organisation are going on, Instead of regarding Logic as a purely objective science, we might with more propriety term it a science which gives the rules for converting the subjective into the objective.

I cordially agree with Mr. Spencer in the propriety of the logician keeping before him the congeries of objective existences as the goal to which he is to strive, and the standard by which he is to test every rule, and to this extent causing his science to be classed amongst those which are objective. But if we attempt to do more than this, by insisting upon confining Logic to what can be regarded as strictly objective at present, we should find ourselves greatly straitened. We should in fact stand in need of a third science, midway between the two called Logic and the Theory of Reasoning, and to this third we should have to relegate far the greater part of all that now currently goes by the name of Logic This would, of course, be an absurd subdivision, and therefore it seems better not to claim an objectivity unattainable at present, but to admit frankly that our processes and results in Logic are conditioned on every side by subjective or relative considerations. Our logical machinery and technical phraseology can only be interpreted by the help of numerous assumptions or conventions; relative, not merely to human intelligence in general but, more narrowly, to the amount and distribution of the knowledge of the persons who have to use the Logic.

J. VENN.

IV.—MARCUS AURELIUS AND THE STOIC PHILOSOPHY.

It costs us some effort to realise the full importance of philosophy to the Greek or Roman citizen who had received a liberal education. For him it combined in one whole body of doctrine all the authority and influence which nowadays are divided, not without contention, by science, philosophy, and religion in varying shares. It was not an intellectual exercise or a special study, but a serious endeavour to gather up the results of all human knowledge in their most general form, and make them available for the practical conduct of life. We know that Greek philosophy had its full share in the bloodless victories won by Greece over her conquerors; and that the Stoic system was especially congenial to the Roman character, and had a considerable majority of adherents among cultivated Romans. We know that the lives of illustrious rulers and statesmen, and of him not least among them of whom there is presently more to be said, were formed upon the discipline of that system; and if evidence is ever to be trusted to connect men's actions and character with their professed beliefs, we have abundant and trustworthy evidence in this case. These facts are almost too commonplace for express mention; but it is perhaps not so easy to remember, what nevertheless is undeniable, that for every name which has made Stoicism remarkable in history, there must have been many, now scarcely noted or wholly forgotten, among the men who did the abiding work of the Roman empire in provinces where the follies and revolutions of the palace had little effect. I have called their work abiding, for it is to be remembered that Rome not only kept peace and order throughout an immense dominion inhabited by all races and conditions of men, and governed some parts of the world infinitely better than they have been governed before or since, but set a stamp on the whole frame of the civilised world which in many respects remains to this day. The Stoic philosophy was in no small measure the source of the moral influences under which this work was done. Moreover, its hand can be distinctly traced in the development of legal conceptions and of the law itself.

It is therefore a matter of considerable interest to understand how Stoicism presented itself to the men in whose hands its teaching bore such fruit; nor is this altogether so easy as might be supposed, for it is one thing to have the tenets of a system laid down in works of professed exposition or discussion, and another thing to seize those elements which really commend the system to those who adopt it in practice. In the case of Stoicism we have abundant accounts of its theory, but for the most part at second-hand. Nothing has come to us straight from the founders or leaders of the original Greek school. In the latter time Seneca can hardly be counted for more than a retailer. Of Epictetus we have only notes and reminiscences put into shape after his death; and Epictetus, after all, is an official preacher. And this increases the difficulty of rightly apprehending the real working contents of the Stoic philosophy. But the difficulty is happily much lessened by our possession of an almost unique piece of evidence—the note-book of an emperor who was likewise a philosopher, or at least a very apt learner in philosophy. The *Commentaries* of M. Aurelius Antoninus, as the editions call them for the want of a better name, have all the appearance of notes freely set down for the writer's own use, and without any thought of publication. They are constantly abrupt, unfinished, or hardly grammatical; some passages are evidently mere jottings of topics for further writing or reflection, the exact meaning of which can be only guessed at. How or when they were first made public is not known. We have here, then, the substance of the Stoic philosophy considered as a working rule of life, and so considered by a disciple whose opportunities of testing it could not well be surpassed. For although it is commonly taken for granted that men's moral principles are best judged in adversity, one may well doubt whether a position of great eminence and weighty duties does not put them to a more perfect trial.

In Marcus Aurelius, then, it seems to me that we may find the safest guide to the knowledge of the Stoic morality in its practical aspect and in its relation to the general system of which it was part. The intrinsic beauty of the morality set forth by him, both in substance and in temper, has been constantly admired; but we are apt to forget that Marcus Aurelius was not a solitary apparition of virtue, but the disciple and representative—an illustrious one, no doubt—of a settled and widely-spread doctrine. And this doctrine, notwithstanding its singularities, or sometimes by reason of them, comes nearer to our own ways of thinking, and has more lessons for us, than appears at first sight.

Before we examine any specific points of the Stoic philosophy, it may be as well to pause and see what were its aims. It is in some sense true that all philosophers are in search of the same end; yet it is in practice very difficult for a philosopher even to announce his object without showing what method he intends to follow and what sort of results he expects to get. Now the objects of the Stoics were eminently practical; they strongly held that knowledge is for the sake of action, and that the worth of philosophy consists in its power to guide the conduct of life. Among other illustrations and comparisons which seem not very pointed to a modern taste they likened philosophy to a fertile field, logic to the fence round it, and ethics to the crop grown in it. They further said that the knowledge by which action is to be guided is a knowledge derived from experience; and they said it in terms which fixed no bounds to the possible bearing of experience and knowledge upon action. Chrysippus, who was considered to have settled the Stoic system in its finished form, is reported to have stated his ideal of life to this effect:—"A virtuous life is the same thing as a life agreeable to experience of what happens in the course of nature; for the nature of each of us men is part of the nature of the world."[1] How the Stoics conceived of *experience* we learn from Plutarch; experience, they said, is by the multitude of similar (or uniform) perceptions.[2] Thus the knowledge that is to serve us in life is founded on an observed order of things, which order is thought of as something belonging to the whole world, and equally present in every part of it. Now this is exactly such a general conception of knowledge as in these times is growing upon us as we become more familiar with the methods and results of science. And we have here no mere verbal coincidence gathered from scattered sentences; the testimony of M. Aurelius will show that the parallel is a real one. The conception of the world as orderly does not only lie at the root of the Stoic system, and explain, as will presently be seen, many of the things that appear strangest in it; we find it constantly treated as something to be kept actively present in the mind, and capable of affording present support and guidance. This it does in two ways: the first bearing immediately upon action, the other more remotely, but not less steadily, through contemplation. First, a right understanding of the external order of things (*ἡ τοῦ ὅλου φύσις*) is in a manner needful for right conduct. It points out to us not indeed duty itself, but the conditions of our duties. It cannot tell us what our actual duties are; that depends on the specific character of man as distinct from other creatures, and more especially upon his social nature. But it can guide us in judging the circumstances and consequences of which we must be in possession in any particular case before we can tell what is really the question of conduct that arises; it does not solve moral problems, but enables us to know what we are about in settling their data. "See whither nature leads you, the universal nature by means of that which happens to you, your own by means of that which you have to do."[1] Obstacles and difficulties present themselves to man's intentions; but he has reason given him that he may find out what is the best thing practicable, and do that; nay, reason has the power to compel the stubborn things of the world to her own ends, as fire converts all sorts of fuel to itself. A right purpose guided by right understanding cannot be really disappointed.[2] But this is hardly so important as the more contemplative aspect of the universal order, which is dwelt upon by Marcus Aurelius with striking force and frequency. The mind that learns to recognise a fixed order and connexion in the changing appearances of the world also learns to take a certain intellectual pleasure in that order considered in itself, apart from the pleasurable or useful character of its operations in their particular effects. Everything has a fitness in its own place, and almost everything may thus be a source of contemplative pleasure to him "who has become truly familiar with nature and her works".[3]

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[1] Ritter and Preller, *Hist. Græc. et Rom. Phil.*, p. 363, 3rd ed. We are expressly told that with Chrysippus the commoner Stoic form of speech—'a life according to nature'—was synonymous with this (*Ib.* 388).

[2] Ἐμπειρία γάρ ἐστι τὸ τῶν ὁμοειδῶν φαντασιῶν πλῆθος (*Ib.* 368).

Again, all things are ever changing and passing away; one comes in another's place and no single thing endures. Perpetual change and renewal is the first law of nature, and everything is in a manner but the seed of that which shall be made of it;[4] existence is a river in constant flow, a torrent sweeping everything before it; the operations of all forces consist in manifold and unceasing change,[1] and this change is indeed the very condition of the being and perfection of all finite creatures.[2] Every part of the world is mutable and subject to decay; but these things are so in order that the world, thus made up of ever perishing parts, may itself be ever the same and ever young.[3] But man is himself part of the universal scheme, and his specific character as man, although it is distinct and important (and by no one has its distinctness and importance been more dwelt upon than by the Stoics), is in the last resort determined by the conditions of the universal order. We may therefore think of ourselves as belonging to the whole order of the world and bring ourselves into a certain sympathy with it. And this habit of thought will help us to lift ourselves above the common passions that vex us with surprise and discontent when events fall out so as to cross our individual desires. Nothing can befall us that is not in the nature of things capable of being understood and reckoned with, and it is our business to master circumstances by understanding them.[4] As for those things which it is not in the power of man to alter or avoid, we are to accept them as being part of that order in which we ourselves are a part, and in which all things, however wide asunder in seeming, are in truth conjoined, and work together for the whole.[5] "Consider the courses of the stars as one running the same course with them, and think constantly upon the changes of the elements into one another; for by the perception of these things the grossness of our life on earth is purged away:" "nothing is so fitted as this to beget highmindedness."[6] Thus we are led to one of the features which is most prominently put forward by the Stoics, at any rate by Marcus Aurelius, in setting forth the ethical ideal. Not only does the fruit of skill and understanding belong to the mind that knows the beginning and end of things, and the reason that pervades and rules all existence;[7] not only does the wise man acquiesce in the decrees of the universal order, knowing that they cannot be otherwise; he meets events with a contented and cheerful assurance, and his maxim is "to welcome everything that happens".[8] Whatever comes to us, however hard it may seem, is *prescribed* by nature, and is no less for the health of the whole than the remedies prescribed by a physician are for the health of the patient. If we repine at anything that happens in the course of nature, we are striving, so far as in us lies, to maim the perfection and unity of the world.[1] So that the rightly instructed man will say to Nature, the giver and taker of all things: "Give what thou wilt: take what thou wilt."[2] Epictetus bade his hearers never to say that they had *lost* anything, but that they had *returned* it.[3] And Marcus Aurelius, going far beyond simple resignation or acquiescence, lifts up his voice in a hymn of adoration (for one can hardly call it otherwise) which is among the most remarkable utterances of ancient philosophy.

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[1] Marcus Aurelius, VII. 55. References hereafter given without an author's name are to the book and section of his work.

[2] IV. 1; VII. 68; VIII. 32, 35; X. 31, 33. In an extreme case the general Stoic doctrine allowed the final way of escape (*ἐξαγωγή*) by suicide. But M. Aurelius, though he nowhere controverts this, seems to hold that there is no case in which there is not something satisfactory to be done.

[3] III. 2; a remarkable passage, which seems to place the contentment of the scientific mind on grounds independent of the ordinary Stoic teleology.

[4] IV. 36; comp. VIII. 6.

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[1] V. 23; IX. 29; *χειμάρρους ἡ τῶν ὅλων οὐσία: πάντα φέρει.*

[2] VII. 18.

[3] VII. 25; XII. 23. Cp. Spinoza's "facies totius universi, quae quamvis infinitis modis variet, manet tamen semper eadem" *(Ep.* 66, *ad fin.).*

[4] VII. 47, 68; VIII. 15; comp. XII. 10, 18.

[5] IV. 40; VI. 36, 38; VII. 9. [6] VII. 47; X. 11. [7] V. 32.

[8] *ἀσπάζεσθαι τὰ συμβαίνοντα* or *πᾶν τὸ συμβαῖνον*, III. 16; IV. 33; and many other places.

> "Everything harmonises with me which is harmonious to thee, O Universe. Nothing for me is too early or too late which is in due time for thee. Everything is fruit to me which thy seasons bring, O Nature; from thee are all things, in thee are all things, to thee all things return. The poet says, Dear city of Cecrops; and wilt not thou say, Dear city of Zeus?"[4]

The last words bring out the speculative foundation of that cosmopolitan character which has always been remarked as prominent in the Stoic system. The Stoics shared, however, with other post-Aristotelian schools a strong cosmopolitan tendency, which is accounted for by the social and political circumstances of the time, and in particular by the decay of local independence, and therewith of the old Greek patriotism, coinciding with a great enlargement of commerce and intercourse between different parts of the world.

It is not my purpose to enter on the task of comparing Stoicism with modern philosophies. But one cannot help being struck by the resemblance of the line of speculation which I have just endeavoured to trace in M. Aurelius, and which seems to me to have been a very central one with the Stoics, to that which is struck out by Strauss in his latest work. English readers may find an even closer parallel to the Stoic nature-worship in a place where few, perhaps, would think of looking for it; I mean in Mr. Swinburne's *Songs before Sunrise.*

It will be observed that the mood of reverent acquiescence, or something more, with which a Stoic looked upon the order of the universe includes elements which do not seem to belong to a purely scientific contemplation. As yet we have not taken account of these, although the foregoing statement could not be kept clear of them. The Stoics had, indeed, the conception of natural order as a thing ascertained by experience, and worth knowing and making the best of simply because it is there and cannot be otherwise. But they sought to reinforce this idea by a creed of dogmatic pantheism with which their doctrine of the Kosmos was closely knit. And this pantheism was associated with, and to a large extent rested upon, a no less dogmatic teleology. Some, at least, of the Stoic leaders appear to have pushed their reflections on final causes into details which nowadays must appear ludicrous to every one. I do not mean that these dogmas were adopted of set purpose; existing habits of thought and language must have suggested them with almost irresistible force. "Qui dit loi dit ordre; qui dit ordre dit finalité: tous ces termes s'impliquent logiquement," says a writer of our own day.[1] To a Greek all this was implied in the one word Kosmos, as M. Aurelius does not fail to note. The Stoics asserted that the world is a product of reason, and that all the laws of nature aim in the long run at reasonable ends. That which partakes less of reason exists for the sake of that which has a greater share of it; so that, without saying exactly that the world was made for man, a Stoic might easily take an anthropomorphic, or rather anthropocentric view of it. Again, the earlier Stoics were not content with the uniformity of nature as an observed similarity of results in similar conditions, but by a strangely fantastic addition they imagined the conditions themselves as recurring on a vast scale. They held, in common with the Pythagoreans, that the world is periodically destroyed and regenerated. Internal evidence and tradition both tend to show that the Pythagoreans got this doctrine, together with that of the transmigration of souls, from India. It is true that the details of the Pythagorean teaching are not sufficiently known. But both doctrines are set forth at some length in mythical fashion by Plato; the recurring cycles of the world's life in the *Politicus*, the transmigration of souls in the *Phædrus*. And in both places, especially the latter, the points of likeness to Indian belief are almost too many to be accounted for by coincidence. Probably both Plato and the Stoics borrowed from the Pythagoreans, though M. Aurelius exhibits one curious coincidence in detail with the language of Hindu philosophy which suggests at least a possibility of later independent communications with the East.[2] Be this as it may, the Pythagoreans, followed by the Stoics, proceeded to better their instructors (whom they had perhaps misunderstood) by asserting that not only was the world to be destroyed and renewed when the perfect period of all things, or *annus magnus*, should be fulfilled, but that the former conditions were to be exactly reproduced, and the whole course of events repeat itself in the minutest details. (This is not only foreign to the Brahman cosmogony, but inconsistent with it.) The only modern parallel I can now call to mind is in a book of no special philosophical pretensions, entitled *Peter Simple*, where Mr. Muddle, the carpenter, assures the captain, with unconscious Stoicism, that he found the very same fault with him on that same quarter-deck 27,672 years ago. Among the later Stoics, Panætius and some others rejected this absurdity; but there is nothing to warrant the belief, which one would be glad to entertain if one could, that Marcus Aurelius did so. He alludes to the doctrine several times without dissent, and with only such slight indications of doubt as to leave it possible that he may have thought the question an open one, but of no practical importance.[1]

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[1] V. 8. [2] X. 14. [3] Epict., *Ench.* 11.

[4] IV. 23 (Mr. Long's translation).

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[1] M. E. Vacherot, in *Revue des deux Mondes*, Aug. 1, 1876, p. 503.

[2] "One is the sun's light, though dispersed by walls, mountains, and other things without number. One is the substance of all things, though dispersed in bodies without number, each of a determinate species [the term in the original, *ἰδίως ποῖον*, is a technical one]. One is reasonable mind (*νοερὰ ψυχή*), though it seem to be divided," XII. 30. The simile of the sun is a commonplace of Indian philosophic poetry, and may have

Again, there is another quite distinct kind of reflection which is apt to be mixed up with the scientific notion of uniformity, and may even simulate it in expression. Moralists of almost every age and school have dwelt upon the common and monotonous character of human life as a reason for not setting one's heart on the usual objects of desire. "There is nothing new under the sun." This commonplace is certainly to be found in M. Aurelius,[2] and when he says that he who has seen the present has also seen the boundless past and future,[3] and speaks elsewhere to the like effect, he may mean only to repeat the same thing; and very possibly the official teaching of Stoicism put it forward as a deduction from the idle fancy just noticed. Still one is tempted to think he had in his mind the greater conception of an order without assignable bounds in time or space, so complete and unbroken that from a perfect know-

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become known to the Greeks. But the Stoic pantheism has in the main very little in common with that of the Hindus.

[1] V. 13, 32; VII. 19; IX. 28; X. 7; XI. 1; in VII. 19, *πόσους ἤδη ὁ αἰὼν Χρυσίππους, πόσους Ἐπικτήτους καταπέπωκε*; *may* only mean, as far as the words go, "How many *such as* Chrysippus and Epictetus have lived and died". So M. Barthélemy St. Hilaire takes it. But it is too like the phrase, doubtless a regular one in the schools, in which the current figment has been preserved to us: *ἔσεσθαι πάλιν Σωκράτην καὶ Πλάτωνα καὶ ἕκαστον τῶν ἀνθρώπων κ. τ. λ.* Nemesius ap. Ritt. and Pr. 381. On the whole matter see Zeller's note, *Phil. der Griechen*, III., pt. i., 141.

For example, IX. 14.

[3] VI. 37.

ledge of the condition of the whole system at any given moment there might be deduced an accurate account of its condition at any time before or after. Certainly in another passage he seems to imagine a "reign of law," as we now say, both in the coexistence and in the succession of things. There is a rational connexion, he says, in the sequence of events; it is not like a mere enumeration of particulars in an arbitrary order.[1] M. Aurelius appears to affirm, again, that either there is no reason at all in the world (and for him, as a Stoic, reason and order are synonymous), or everything that happens must be the determinate result of an original and universal order: but the passage is far from clear.[2] It is worth noting that his conception of uniformity, whatever it was, applied no less to human affairs and conduct than to any other class of events.[3] This is no more than one would expect, as the Stoic philosophy is well known from other sources to have been wholly determinist.[4] The technical name for the necessity or universal law governing the world was *εἱμαρμένη*. "Fatum autem id appello," says Cicero, abridging or paraphrasing, as it seems, from the Stoic Posidonius, "quod Graeci *εἱμαρμένην*, id est ordinem seriemque causarum cum causa causae nexa rem ex se gignat. Ea est ex omni aeternitate fluens veritas sempiterna. Quod cum ita sit, nihil est factum, quod non futurum fuerit, eodemque modo nihil est futurum, cuius non causas id ipsum efficientes natura contineat."[5]

It is remarkable that this general tone of cosmical and scientific contemplation did not bring the Stoics into conflict with the popular creed. Not only did they offer no opposition to the rites, observances, and superstitions of the unlearned, but they even found reasons in their philosophy to support them. Especially they defended the art and mystery of divination long after it had become the subject of doubt or open disbelief elsewhere; and they attempted to give their defence the appearance of a serious argument on scientific grounds. Their system forbade them to affirm special interferences with the course of nature, such as signs and wonders were commonly esteemed. The events foretold by omens and victims were indeed, they said, unchangeable and determined from the first, as links in the chain of an eternal order. But the omens and victims were also links in the same order.[1] The fact of the connexion was abundantly established by experience; and as for the part of the gods in the matter, they did not change the order of things, but knew the hidden causes and signs of events better than men, possessing as they did a higher intelligence; and what could be more natural and reasonable than that they should be moved by goodwill to man to impart some of their knowledge to him? Arguments were constructed exhibiting the truth of divination as a necessary deduction from the existence of gods:[2] and the prophecies of the soothsayer were represented as analogous to the scientific predictions of the astronomer. The Stoics would not have found much to learn, apparently, from the defenders of sundry pseudo-scientific positions in later days. On this point Panætius again stands out in honourable dissent; he ventured (to the no small scandal of his colleagues) to cast doubt on the efficacy of divination.[3]

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[1] IV. 45. Mr. Long gives "a *necessary* sequence" for τὸ κατηναγκασμένον. But in modern usage that is necessary which is the result of law; whereas the ἀνάγκη here contemplated is the opposite of law.

[2] VII. 75; see Mr. Long's note.

[3] VII. 49.

[4] See Zeller, *Phil. de Greichen*, III. pt. 1, 144-155.

[5] *De Div.*, I. 125.

We have yet to remark the greatest speculative paradox of the Stoic philosophy. It exalted Reason as the source of the world's order, the one ruler and judge of all things, the sole fountain of good to every creature, and especially the sole origin and measure of morality for man. And at the same time it was frankly, nay grossly materialist; no whit less so than the rival school of Epicurus, and probably more so than any modern school has been. The Stoics asserted in set terms that nothing really exists but matter, and that the soul is material (*σῶμα ἡ ψυχή*).[4] Even the world-soul, which they identified with Zeus or the supreme God, was regarded as a kind of finer matter endowed with special qualities of penetration and diffusion—the elemental fire as they sometimes called it. They would have hailed the luminiferous ether as an even more valuable contribution to theology than to physics. To give one concrete example of this materialism, Marcus Aurelius gravely notes and considers the question (not unlikely to have been a current one) how there can be room in the air for all the souls of the dead?[5] I am not aware that either the materialism or the superstition of the Stoics had any sensible effect on their ethical doctrines or practice; but it was impossible to omit mention of these things, as the omission might have been misleading. It is likewise hardly possible to forbear noticing the signal example here given of the danger there is in affecting to hold either schools or particular men to what are called the logical consequences of their opinions. We hear a good deal nowadays of the mischievous tendencies of materialism and pantheism, and their incompatibility with a high moral ideal; and this not only from those who scatter materialism and pantheism as vague terms of abuse, but from men who have a distinct meaning for their words. In the philosophy of the Porch we find that, as a matter of fact, a most lofty and ideal morality—which indeed so much abhorred all weakness, compromise, and condescension, that it has earned even with a wise and generous historian the reputation of being harsh and impracticable—was associated with both pantheism and materialism in their crudest forms. We also hear a good deal of the absolute necessity of the doctrine of free-will (that is, causeless volitions) for the support and the very existence of morality: those who use such language surely forget that Marcus Aurelius, in common with all the moralists of his school, was an uncompromising determinist. It would seem that on the whole it is more or less unsafe to rely on any supposed necessary connexion between metaphysics and morals.

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[1] Cicero, *op. cit.*, I. 118.

[2] Cic., *op. cit.*, I. 82, II. 101.

[3] Cic., *op. cit.* I. 6. On the subject generally, Zeller, *Phil. der Gr.*, III. pt. i., 313, *seqq.*

[4] They described the intelligible or predicable relation (λεκτὸν, κατηγόρημα) between material things as immaterial (ἀσώματον).

[5] IV. 21.

It is true that the Stoics conceived matter itself, or at least that which composed the finer elements, to be in its own nature active, so that their physics, as Zeller puts it, were dynamical rather than mechanical. And it may also be said that the contrast between materialism and idealism had not then been sharply defined as it is now. They may be said therefore, in a certain sense, not to have been pure materialists.[1] But the same may be said, for the same or other reasons, of most of the writers to whom the name is applied in modern times.

The ethical theory of the Stoics can be understood only by keeping in mind its connexion with the general view of the world of which we have endeavoured to give some sketch. Taken by itself, the language of their fundamental maxims is exceedingly vague; and some well-known expositions of them, which are classical as literature but of secondary rank in philosophy, may be vague enough to justify the surprise and even contempt expressed by some modern writers. "Live according to Nature" is at first sight the most ambiguous of precepts. But the Stoics had a definite meaning for it, and were at some pains to explain it. They held, as we have seen, that everything is subject to one universal order, which is itself settled by, or rather is conceived as being, a supreme and all-pervading intelligence. This order being determinate and irresistible, every agent and event in some way or other fulfils it. Even those who think to hinder it are against their own conceit working for it, and we may say of them "Of these too the world had need".[1] On this ground there is obviously no foundation for ethical distinctions. But when we so far quit this universal point of view as to consider any particular species in relation to the whole, we see that it has certain constant relations to the rest of the world, which in fact determine its specific character, and which in the case of living creatures the life of the species is occupied in maintaining. Every creature has some normal function as part of the general order of the Kosmos;[2] what those functions are for each kind is to be ascertained by experience. They must always include, however, the preservation of the species; otherwise it could not exist as a species: thus the impulse of self-preservation, which the Stoics ascribed to every creature as the first spring of action, is not only common, as a matter of fact, to all active beings, but is an integral part of the common order of the world. Every act of an individual which belongs to the proper function of its species as thus understood is, in the Stoic language, *according to Nature* as regards that species, that is, according to its specific nature (*ἰδία φύσις*); and inasmuch as it is an instance of the general law which fixes the normal place and action of the species in the great concert of the Kosmos, it is also said to be in an eminent manner *according to Nature*, taken in the general sense as the universal order (*κοινὴ φύσις*). Now man, as well as other creatures, has his specific function, or *nature* in the Stoic sense, as part of the cosmical plan. But, unlike other creatures, he can fulfil it with conscious intelligence and choice. He may know his station in the world, and know also that in maintaining it he is fulfilling the purpose of the supreme Reason. By the very fact of being addressed to an understanding agent the command "Live according to Nature" becomes "Live according to Reason." This reason, as expressed in the constitution of man and his relations to the world, his capacities, his achievements, and his aspirations, furnishes a type or pattern of life which may be sufficiently known by those who choose to model their conduct upon it. Actions conformable to this type are morally right, and rightmindedness is the conscious striving to attain it (we neglect for the moment the minuter points of Stoic doctrine); it is in this sense that moral goodness is the fulfilment of man's proper nature. The architect or the physician has his proper art, which, if he is competent in it, he conducts according to fixed principles; but every man, simply as a man, is in the same case;[1] and man, like every other creature, is judged by his fitness for the work for which he is destined.[2] "What is your business in the world? To be *good.*"[3] This then is the calling imposed upon man by the supreme Reason; a fact to be observed which implies a law to be obeyed. Righteousness consists in fulfilling the duties imposed by it with a cheerful obedience of discipline.[4]

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[1] Lange, *Gesch. des Materialismus*, I. 72, 2nd ed.

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[1] VI. 42.

[2] *ἕκαστον πρός τι γέγονεν*, VIII. 19.

Some points must be noted here in which the Stoics differed much from the moralists of later times, not so much in their solution of ethical problems as in their conception of the problems themselves and of the province of ethics as a science. A modern reader is tempted to ask where is the *sanction* in the Stoic scheme of morality? How does it answer the question which some regard as the very first that moral philosophy is bound to answer—why should I do right? It may seem strange to us, but so it is, that the Greek philosophers, and especially the Stoics, troubled themselves very little to find a direct reply. The question seems hardly to have occurred to them in that form; they rather assumed that a doctrine of ethics is addressed to learners who are in the main willing to be taught, and it is far from certain that they were wrong in so doing. It may be fairly doubted whether it is the business of moral philosophy to establish the existence of its own subject-matter. There is no topic on which one may not bring argument to a standstill by pushing obstinate denial far enough; and it may be that a man who will not admit that there is such a thing as moral duty thereby removes himself out of the reach of philosophy, and is amenable (supposing his opinion to be sincerely held and acted upon) only to other kinds of discipline. After all, the modern way of supporting the moral law with sanctions only puts the difficulty back; for what if a perverse man should say, I do not care for your sanction? We know that the most stringent sanctions have in fact been deliberately set at defiance on several occasions. Do we say, then, that sanctions are of no account? Certainly not; their part in a historical inquiry concerning the growth of morality, or in the consideration of the state of morals existing at any given time and place, is of the utmost importance; but this belongs to the practical side of the matter, and does not show that duty can be exhibited by way of logical demonstration to any recalcitrant individual. But to return to the Stoics: whether it was a real omission or not, they did not consider the groundwork of ethics in this light. In Marcus Aurelius there is very little about the consequences of right or wrong actions to the individual agent. It is worth mentioning, however, that in one passage of Epictetus we find a clear enough expression of what is now called the sanction of self-esteem.[1] He distinctly says that we are to weigh against the enjoyment of a present pleasure, on the one hand the future pain of repentance and self-reproach, on the other hand the future pleasure of a satisfied conscience. And the Stoics asserted no less stoutly than any one else, even the Epicureans, that virtue is the only true happiness, though they denied that virtue is morally preferable *because* it gives happiness. Even this, however, is not prominent in Marcus Aurelius; and it is needless to repeat here that the Stoics required virtue to be above all things disinterested. One instance may be given: "When thou hast done a good act and another has received it, why dost thou still look for a third thing besides these, as fools do, either to have the reputation of having done a good act or to obtain a return."[2] Of the optimism of their ethics we must say a word more presently.

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[1] VI. 35.

[2] VI. 16.

[3] XI. 5.

[4] The disobedient and dissatisfied are compared to runaway slaves, X. 25, and more oddly to a pig that kicks and squeaks when it is sacrificed, X. 28. Modern readers may be inclined to agree with the pig.

Now this assumption, which I think is tacitly made all through the Stoic teaching—namely, that there is such a thing as a rule of right conduct binding one man as well as another, and that the average man, so far at any rate as philosophy has to deal with him, is willing to follow that rule if it is properly explained to him—brings us almost at once to the famous Socratic position, that *virtue can be taught*; or obversely, that vice is mere ignorance. If (among the nations which have produced philosophers at all events) men were not on the whole able and willing to do right oftener than not, it is difficult to see how moral philosophy would be possible. In so far as a man is able and willing to do right, he can do wrong only by mistake or misapprehension; and it is readily perceived that much wrong has been and is done in the world for pure want of knowledge. The Stoics, dwelling exclusively upon this view, referred all wrong-doing to this head; and the doctrine had great practical importance in their school, as we see in Marcus Aurelius, as an argument for patience and equanimity in bearing misbehaviour at the hands of one's fellow-men. Reflect, he says in substance, that it is the deed of your fellow and kinsman, not knowing the law of his own nature;[3] ask yourself what is his mistake;[4] his wrong is in truth involuntary;[5] it is the inevitable result of his erroneous notions as to what is good and desirable,[1] his mind being as it were jaundiced.[2] It is more than once added that rather than waste time in anger, you should teach him to know better.[3] Other reasons are also given in the same and other passages, but none so characteristic of the Stoic system. Once it is said, "It is proper to man to love even offenders."[4] Again, the immortal gods have to put up with worthless men through all time, and take it not amiss; how much more then shall you endure them for a little lifetime, being even such an one yourself?[5]

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[1] Epict. *Ench.* 34.

[2] VII. 73 (Mr. Long's translation); and see IX. 42, cited below.

[3] III. 11. [4] V. 22; VII. 26. [5] VII. 22, 63; X. 30; XII. 12.

From this digression, which seemed needful by way of explanation, we go back to the positive conception of morality as held by the Stoics. Virtue does not, in their view, consist in action directed consciously to the attainment of some ulterior advantage, but in the normal and healthy exercise of an active function[6] belonging to the proper constitution of man as a species (*ἰδία φύσις*). The question then presents itself, what is this specific constitution? What are the characteristic qualities of man that make him a moral being? The answer, often and in many forms reiterated in the teaching and writing of the school, is that man is reasonable and social; there is no lack of other authorities on this point, but the constant occurrence of the topic in Marcus Aurelius is significant as confirming them. Here again it is to be observed how the Stoics made use of their cosmical and teleological ideas as a background for ethical theory. The world itself being conceived as rational, and man being the eminently rational creature, the agreement of man's *ἰδία φύσις* with the *κοινὴ φύσις*, or general law of the universe, is presented with an air of self-evidence.[7] It is likewise assumed as axiomatic (so at least it appears in Marcus Aurelius) that the only rational life for man is a social life. When man consults his reason it clearly and imperatively bids him live with his fellow-men; human reason itself is constantly called social (*λόγος κοινωνικός*, sometimes *πολιτικός*). "He is a deserter who abandons the social reason. . . . . he is a fragment torn from society who tears his own soul from the soul of reasonable creatures, which is one."[1] As will be seen by this last quotation, the pantheism of which we have already spoken is brought in to give a metaphysical reason for the social bond; the souls of men being conceived as pieces or quantities of the same stuff. Man is social, and is entitled to sociable treatment at the hands of his fellow-man because he is reasonable.[2] Each man is to the community as a member to an organism, not as a mere part to an aggregate;[3] so the man who commits an unsocial action is a mutilator of the body politic, in that he cuts himself off from it; but, as Marcus Aurelius or his original quaintly, yet finely, adds, the limbs of this body have the special gift of being able to reunite themselves to it.[4] Further, as a branch cut off from the next branch must needs be cut off from the whole tree, so a man at strife with his neighbour is cut off from the whole fellowship of men.[5] The whole of man's action is to be directed to social ends, and to the good of his fellow-men,[6] and such action, being the exercise of man's proper energy and the fulfilment of his truest nature, is its own sole and sufficient reward. Does the eye seek a recompense for seeing or the feet for walking? Likewise the man who has done aught towards the common weal has done that which he is set in the world to do, and in doing it receives his own.[7] It is even said that every deed that does not bear directly or remotely on the chief end of the common welfare is of the nature of dissension and sedition.[8] One passage, in which the duty of sociableness is enforced, first by various supposed physical analogies in the elements, and then by the example of the gregarious and social animals, concludes with the remark that no man can be wholly unsocial even if he tries: nature is too strong.[9] It is said, too, that the ruling principle in man's constitution is that of society.[10] In all this there is at the same time a notable absence of any distinct reference to political activities and duties; the city from which all the older Greek ideas of religion and morality took their spring and strength has become expanded to the bounds of the inhabited world, and man owes duties to his neighbour, not as his fellow-citizen, but as his fellow-man. For the *πολιτικὸν ζῶον* of Aristotle the teachers of Marcus Aurelius had substituted *κοινωνικόν*. This is indeed one of the most familiar marks of the post-Aristotelian philosophy in general. In some ways the cosmopolitan turn of ethical conceptions was a real advance, though both its origin and its development exhibit clear signs of weakness. But in considering the effect of Stoicism on the Roman world it is proper to bear in mind that the feeble side of its cosmopolitan doctrine was just that to which a Roman disciple accustomed to take part in affairs of state would be likely to bring sufficient correction from his own resources. A Roman commander or administrator guarding the frontiers of the Empire against fierce and barbarous tribes could never be a mere citizen of the world; and it is not insignificant that we find Marcus Aurelius, who was himself thus engaged during part of the time that he set down his notes, more than once giving a marked place in his reflections to his duties as the first of Roman citizens. "Being Antoninus, I have Rome to my city and country; being a man, the world. The weal, then, of these cities is the sole measure of good for me."[1] Before passing on we may note that the connexion between the social morality of Stoicism and its cosmical theory is well given in a single sentence by Cicero: "They (the Stoics) are of opinion that the world is governed by the power of the gods, and is in a manner a common city and polity of men and gods; of which world each one of us is a member. Whence this follows in course of nature, that we set the common weal before our own."[2]

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[1] VIII. 14.

[2] VI. 57.

[3] X. 4; XI. 11; XI. 18 (in this last passage most of the precepts for such occasions are summed up).

[4] VII. 22.

[5] VII. 70; compare with this the legend of Abraham and the fire-worshipper.

[6] The man of sound judgment perceives that his own good lies in his own activity (*ἰδίαν πρᾶξιν*), VI. 51.

[7] For the reasonable animal (man) action "according to nature" and "according to reason" are identical, VII. 11.

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[1] IV. 29.

[2] VI. 23.

[3] VII. 13. There is an untranslatable pun on *μέλος* and *μέρος*.

[4] VIII. 34; XI. 8.

[5] XI. 8.

[6] VII. 5; IX 23.

[7] IX. 42.

[8] IX. 23.

[9] IX. 9.

[10] VII. 55.

The next question may seem to be of this kind: All this being so, how did the Stoic morality provide for dealing with the problems of conduct that arise in actual life? The foundations of the work being thus laid, by what rule were the details assigned? And if it is indeed a material part of the business of moral philosophy to tell people what is right and wrong in given circumstances, there is no doubt that Stoicism must be found sadly wanting. There is very little in Marcus Aurelius that could be used to throw any direct light on particular cases of conscience. But there is another view of the office of moral philosophy not wholly without supporters, which is that this task is exactly what moral philosophy should not attempt. According to this opinion the office of ethical science, so far as it has a practical bearing on conduct, is not to solve special problems, but to form a habit of mind fit to solve them in action. The object is to impart not bare precepts, but moral habits which may bear the good fruit of right intention guided by trained judgment; not to teach men what actions are right, but to make them rightminded. A healthy moral constitution may be trusted to deal with the particular cases as they arise. You cannot make yourself righteous by working out a set of fixed rules; on the contrary, when you want to know how to apply the rule in a new instance you must take the judgment of the righteous man. This conception, more familiar perhaps to the Greeks than to most of ourselves, is often present in Aristotle, and there are indications, at least, in Marcus Aurelius that it was practically adopted by the Stoics. We find the healthy moral sense expressly compared to the healthy sight or taste of bodily sense.[1] It is well known that the ideal *wise man* of the school was conceived as infallible in his moral judgment; this however proves nothing as to the supposed character of the process of judgment itself. But I do not think the process is anywhere represented as one of calculation from rules, save so far as an accurate knowledge of the circumstances and consequences is dwelt upon as necessary to right action; and this last has to do with the conditions of the problem rather than with the actual solution.

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[1] VI. 44.

[2] Cic., *De Fin.*, III. 64.

It is true that some of the Stoics appear to have committed themselves to what is now called casuistry, and not to have escaped the kind of odium which has become attached to the like inquiries in later times. And certainly some of their results, as handed down to us (if we could be sure that they are fairly represented), are not altogether edifying. But the displeasure they gave was due in great measure to their adopting from the Cynics an open and offensive disregard of men's common feelings. There was an original connexion between the Stoic and the Cynic schools, and though the Cynic elements of the Stoic doctrines were gradually thrust into the background, or explained away by the more enlightened leaders, yet there was always a Cynic wing, as we might now say, of the Stoics, and Cynical propositions held their ground as commonplaces long after they had ceased to be consistent with the developed and active social morality of the school. We find several times in M. Aurelius a vein of coarse and exaggerated depreciation of all ordinary objects of desire, where the argument, such as it is, consists in exhibiting them as resolved into elements which are separately worthless or disgusting.[2] These passages can be accounted for, I think, only as a residue of Cynic traditions. They have no real affinity with the lofty cosmical disdain with which, as has already been seen, the Stoics endeavoured to look down upon the slight and mutable things of this world, but which is consistent with an earnest purpose of doing the best one can, however little it may be, and not despising one's work for not being greater,[3] and which sought contentment not in violent self-deceptions, but in an even mind. It is no Cynical prompting that bids men pray, not for the objects of desire, but for a soul free from desire.[1] Developed Stoicism is equally remote from the crudity of the Cynics on the one hand, and from asceticism on the other. Man's physical well-being (*ἡ ὡς ζώου φύσις*) is not to be suppressed, but rather cultivated, in subjection however to the demands of his reasonable and social well-being (*ἡ ὡς ζώου λογικοῦ φύσις, τὸ λογικὸν καὶ πολιτικόν*).[2]

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[1] X. 35.

[2] VI. 13; VIII. 24, 37; IX. 36; XI. 2. M. Barthélemy St. Hilaire's phrase, "crudité étonnante," is not at all too strong.

[3] Compare IX. 28 with the following section.

The Stoic optimism and its curious consequences are perhaps the most generally known parts of the system. The Stoics, holding that the universe was governed by immutable law, which law was the expression of perfect reason and the pattern of all good, were necessarily optimists. They looked upon the universe as good in a human and ethical sense, and the Wise Man was the purposed crown and glory of creatures. And they had accordingly to face the question which every scheme of benevolent teleology has to face in some way—namely, Why do good men suffer evil in the world? The answer they gave deserves admiration for its boldness. They simply denied the fact. They said that the supposed evils are not evils at all; the common objects of desire or aversion, in so far as they do not involve ethical merit or demerit in the person enjoying or suffering, are neither good nor bad, but indifferent. This is the celebrated doctrine of *Adiaphoria*, which the Stoics maintained against all comers with great zeal and pertinacity; yet they had to admit that for practical purposes there must be such a thing as a rational *preference* among these *indifferent* things, if only because the Wise Man must needs make some choice among them; and they saved a contradiction in terms by ingenious distinctions and refinements, on the particulars of which we need not enter here. The line of thought by which the main doctrine was reached is no matter of conjecture: it is distinctly given, for instance, by M. Aurelius, when he says that nothing can be really good or bad which befalls good and bad men alike.[3] The topic was considered by the Stoics as one of importance on account of its practical value in strengthening the mind against the common temptations of the world, and the deliberate cultivation of *Adiaphoria*, the attitude of pure indifference towards the whole contents of the neutral field "between virtue and vice," was recommended as a point of moral discipline.[4] The same optimism led in much the same way to the well-known Stoic paradoxes concerning the blessed state of the Wise Man. Since no real harm can befall the man who possesses true wisdom and virtue (it will be remembered that with the Stoics these were synonymous), and he who does not possess them possesses no real good, it follows that the wise man alone is entitled to all the honourable additions which men are accustomed to bestow indiscriminately; to him alone belong freedom, wealth, and kingship—even personal beauty was not omitted from the catalogue.[1]

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[1] IX. 40.

[2] X. 2. The Cynics, it has been well remarked, were not *ascetics;* for they sought not to mortify desires, but to reduce them to the least number, and satisfy them in the cheapest and coarsest way.

[3] IV. 39.

[4] VII. 31.

These and kindred propositions were not taken by the Stoics in the way of rhetoric or metaphor; we are told, indeed, that the school was averse to rhetorical expansion. They were seriously maintained as literal truth, and defended with the utmost rigour of dialectic.[2] Still, it is difficult to believe that Stoic teachers always resisted their capacities for rhetorical treatment. Cicero has left us some specimens in this kind, and in particular a little book entitled *Paradoxes*, where he sets forth the Stoic maxims in a popular manner. It may be convenient to give the heads—they are as follows: 1. Moral good [τὸ καλόν, *honestum*] is the only good. 2. Virtue suffices for happiness. 3. There are no degrees of wrongness or rightness in actions. 4. Every fool [=not-*wise* in the Stoic sense] is mad. 5. The wise man alone is free, and every fool is a slave. 6. The wise man alone is rich.

Outsiders naturally found here a tempting field for ridicule, and were not slow to make the most of it. Serious argument was not so easy as it might seem at first sight, for the Stoic could meet any appeal to facts by explaining that there was not a real Wise Man to be found in the world. It was certain that there had been very few altogether, and it was an open question whether any one had come quite up to the mark in historical times. Socrates and one or two others were commonly admitted, and some of the Roman Stoics ventured to add Cato.[3]

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[1] See, for example, Cic., *De Fin.*, III. 75; Hor., *Ep.*, I. i. 106; *Sat.*, II. iii, 45 (the whole Satire is an illustration of the paradox, πᾶς ἄφρων μαίνεται, No. 4 in Cicero's list).

[2] Cato autem, perfectus mea sententia Stoicus . . . in ea est haeresi quae nullum sequitur florem orationis neque dilatat argumentum; minutis interrogatiunculis, quasi punctis quod proposuit efficit.—Cic., *Parad.*, Procem.

[3] The singular parallel between wisdom in the Stoic philosophy and the state of grace in Augustinian theology is pointed out by Zeller (*op. cit.* 235). It extends even to the detail of the transition or *conversion* from utter darkness to perfect enlightenment being the work of a moment. It will be noted that the number of the elect is much more narrowly limited by Stoicism than by even the most rigid forms of Calvinism; there may not be a single *wise man* in many centuries. But then the consequences of ex-

But here, again, they made a compromise with practical needs. Strictly speaking, one must either be in the perfect light of wisdom, or in an outer darkness wherein there were no degrees. A miss is a miss, they said, whether the shaft goes a hair's-breadth or a mile beside the mark. Yet they devised the notion of a certain *proficiency* towards real excellence, which might approximate indefinitely to it in its effects, though it could never be the same thing; a kind of ethical asymptote to the unattainable ideal. All this was likely enough to degenerate into quibbling and mere verbal puzzles, especially under the influence of a fondness for the curiosities of dialectic (Cicero speaks of the Stoics as cultivating *conclusiunculae*, and see the quotation in the note above) which was characteristic of the school. The paradoxical and polemical aspects of the system acquired undue prominence in the eyes of critics and outside observers, and, I think, have retained it in modern times. It is remarkable that there is hardly a trace of them in Marcus Aurelius. So far as one can guess from his writing, Horace's jesting notice of Chrysippus's dictum that the Wise Man would be the best of cobblers, if he chose, must have fallen quite harmless upon him. May we not suppose that the men who, like Marcus Aurelius, took up Stoicism not as a literary profession but as a guide to the conduct of active life were content to leave this kind of discussion alone, or even in their hearts despised it as mere verbal trifling?

It will readily be understood, but perhaps I should expressly repeat it, that the object of the foregoing pages is not to give an exposition of the Stoic system, such as it was, or may have been, officially set forth by the founders and masters of the school, but to trace the substance and connexion of the doctrines which appear to me to have contained its working power for Marcus Aurelius and those of whom he is the type. The history of Greek philosophy is a magnificent and weighty subject, which yet remains to be worthily treated by an Englishman. My present endeavour is not only within narrow bounds in extent, but altogether in a narrower sphere. But no inquiry can be worthless which may throw any light upon the character and moral training of the men whose arts and arms, maintained by Roman energy, and touched with the fire of Greek intellect,

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clusion were comparatively slight. There is a coincidence of a higher kind with Christian thought when Marcus Aurelius bids himself lead a new life from every moment, "as one that is dead, and whose past life is now finished," (VII. 56); "thou shalt be a new man and enter upon a new life" (X. 8). A not less striking parallel may be found in the Buddhist *Nirvâna*, if that (as maintained by Mr. Rhys Davids) is a state of passionless perfection, theoretically attainable even in the present life.

established the empire and the peace of Rome, and created the civilised world.

NOTE.—I may add a word here about editions and translations of Marcus Aurelius. No author wants a commentary more, but Marcus Aurelius has been strangely neglected in this respect. There is, I believe, no annotated edition later than Gataker's, which dates from the middle of the seventeenth century. The text is often difficult, or corrupt, or both; the condition of some places is probably hopeless. Besides other scholars, Corais and Schultz have done good work upon it, but much yet remains to do. The Tauchnitz reprint of Schultz's text (which is practically the only available edition for ordinary purposes) has critical notes, but the absence of all discriminating marks in the text itself is a drawback. For English readers the want of a commentary is, to a considerable extent, supplied by Mr. Long's excellent translation; not altogether, for I think, with all deference to the taste of a master in criticism, that the Greek has, if not exactly a charm, yet enough of a "distinct physiognomy" to keep one from leaving it on the shelf. One can only regret that Mr. Long's notes are so few and brief. A new French translation has been published by M. Barthélemy St. Hilaire (Paris, 1876). The version is more finished in style than Mr. Long's, but often at the cost of exactness. Corrupt passages are slurred over, for instance, in a way quite inadmissible according to English notions of scholarship, by guesses at the general sense which do not stand for any particular reading. There is a running commentary, which does not attempt any specific tracing of the various Stoic doctrines, and does attempt, with very indifferent success, to find in M. Aurelius the tone and arguments of a modern French philosopher of the *spiritualiste* school. The notes, in fact, are rather homiletic than exegetic. The object appears to be simply to reproduce the book in a form suited for modern use as an aid to moral reflection.

FREDERICK POLLOCK.

V.—PESSIMISM.

IN offering the following remarks on Pessimism, my object is not to advance any new arguments in its support, but only to review that critical survey of the doctrine which has recently been made by an English writer. Pessimism, as is well known, has of late been gaining ground both in Germany and elsewhere, and in view of this fact Mr. James Sully has presented us with an examination of the doctrine in a work entitled *Pessimism: A History and a Criticism*. Three points in particular have been dwelt upon by him: first, the systematic proof which the doctrine has found in the works of Schopenhauer and Hartmann; secondly, its chance of realisation in the present and future; and lastly, the conditions of its genesis in the individual mind, and the causes of its rapid propagation. Mr. Sully especially attacks the *Philosophie des Unbewussten* of E. von Hartmann. As this work has not yet been translated into English, it is hardly possible for English readers to estimate the justice of the charges that Mr. Sully has brought against it; and hence they may not be unwilling to listen to a voice out of the pessimistic camp raised in defence of its leader.

To the unreflective mind in the juvenile age of individuals as well as of the race, life in itself is no problem: it is a self-evident thing—that which must be, and cannot help being. But when pain, sickness, hunger, death appear, then come doubts and questionings, stirring that feeling of *wonder* which is destined to become the mother of philosophy. Thus does meditation on the misery of life beget philosophy, while at the same time it prompts the desire to vanquish that misery, as a thing which ought not to be.

Mr. Sully in the first four chapters of his work gives an account of the struggles between pessimism and optimism, which will interest many readers. As we approach the present time, we find the voices of unreasoned pessimism swelling in number, while philosophic pessimism recedes more and more into the background. Schopenhauer first fully recognised the claim of pessimism to be regarded as an integral part of the system of philosophy; Mr. Sully, accordingly, next expounds his system. In relation to pessimism Dr. Hartmann[1] may be considered the successor of Schopenhauer, but in respect of the principles of his system he can no more be called the successor of Schopenhauer than of Hegel. All that can be said is, that as every vital system of philosophy must assimilate the main ideas of its predecessor, so Hartmann's is a higher synthesis of Schopenhauer's 'alogical' will and Hegel's logical idea as attributes of the unconscious spirit. It is an error in Mr. Sully to class Hartmann with Bahnsen and Frauenstädt as disciples of Schopenhauer[2]; while he obscures the metaphysical and psychological proof of pessimism by constantly mixing up the doctrines of Schopenhauer and Hartmann, the part played by Will in the systems of the two being entirely different.

Mr. Sully next gives a short biographical sketch of Hartmann, with a brief analysis of the *Philosophy of the Unconscious.* In composing this work Hartmann addressed himself less to the limited circle of professional philosophers, than to the large body of readers, happily still to be found in the "land of thinkers and poets," who are interested in philosophical questions. Partly on this account, and partly as a consequence of the inductive method employed, we find explanations given in the first and second parts of the work which either have a merely propædeutical value or which, though well fitted to elucidate the successive steps of the induction, are seen from the higher levels afterwards reached to be self-evident, not to say, tautological. Now, Mr. Sully, in examining the work, points out first these passages which are generally unimportant; and, instead of indicating the fundamental principles of the system and the consequences drawn from them (the only way to give in a few pages a sufficiently clear exposition of a philosophical system), he follows the successive steps of the induction, sometimes crowding the contents of a whole chapter into a single sentence. The result is, to give the reader not only an inadequate, but a decidedly distorted view of Hartmann's great book.

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[1] Hartmann is *Doctor honoris causâ* of the University of Rostock.

[2] It is also an error to call A. Taubert a disciple of Schopenhauer. Taubert's view of the world is based entirely upon Hartmann's philosophy.

Here the historical part of Mr. Sully's work ends. In Chapter VII. he begins the criticism of the metaphysical proof of pessimism. Like Hartmann—though from a very different motive—he designates the problem of pessimism a eudaemonistic or hedonistic one. As the ethical worth of the world is of account only as it influences the feelings, he shows that hedonism is the only principle whereby we can try the solution of the pessimistic question. Would the non-existence of the world be preferable to its existence? Pessimism, according to Schopenhauer and Hartmann, follows *à priori* from the nature of Will, as the principle of life. Every act of will refers to something which does not yet exist, else it would not be necessary to will it; and as long as the volition does not procure its satisfaction, there is a state of longing, restlessness. All these terms are of course but similes when the satisfaction of will is an unconscious representation. If a volition can become satisfied, it must be at the cost of another volition, which is proportionately repressed in its sphere of action. In the region of conscious life, whether the aim of will be the mere maintenance of life, or the realisation of an idea, it is at all times and at all points in collision with other volitions, tending in opposite directions, and those that give way in the struggle react as pain. Schopenhauer was content to deduce the misery of life *à priori* from the principle; but Hartmann, proceeding inductively, offers an *à posteriori* proof. Nevertheless, he also has his *à priori* treatment, and thus, when Mr. Sully attempts to undermine the metaphysical and psychological bases of German pessimism, he has to deal with the metaphysics of both philosophers. Metaphysical systems, in Mr. Sully's eyes, are mere outgrowths of poetical fancy, without any claim to a relatively objective truth. He grounds this opinion on the fact that new systems are continually springing up; but he does not see that there is something common to all, which is ever developing and growing in breadth and depth. Acknowledging no objective spirit, he does not understand how philosophy is the development of the self-consciousness of the Absolute in the multitude of individual minds. The impulse, rooted in the deepest ground of our nature, to inquire after the *causae causarum*, to advance from the phenomenon to the noümenon—this most lofty of the impulses common to men—is to Mr. Sully a weakness, and in his optimism he hopes that a time will come when it shall be conquered (p. 153), and men will be satisfied with the knowledge sufficient for the practical relations of phenomena to each other.

But as long as this impulse, which Schopenhauer calls the "metaphysical want," exists in most men, Mr. Sully holds it to be the prime task of philosophy to show that it has no right to exist, since all that we can know is that a gulf yawns between our empirical world (of subjective representations) and its transcendental essence. Now against a dogmatism which lays claim to the possession of absolute truth, it is clearly open to object on the ground of subjective idealism. Accordingly, when Schopenhauer, notwithstanding his idealism, asserts that we are immediately conscious of our will, Mr. Sully does well to point out that we do not know our will otherwise than as a representation—as an object, like our Ego, among other objects. Hartmann, however, in his philosophy is no dogmatist; on the contrary, he ever seeks to combat dogmatism. The *critical* ground he takes up is indicated in his work *New-Kantianism, Schopenhauerianism and Hegelianism*, while his position relative to the different theories of knowledge, especially to Kant's subjective idealism, is shown in his *Foundation of Transcendental Realism* (1875), and in a criticism of Von Kirchmann's *Theory of Perception* (1875). We are willing to suppose that Mr. Sully did not know of these works when he wrote the airy sentences on p. 454.

From the point of view of subjective idealism metaphysic is an impossibility. If time, space, causation, relation, existence, &c., have as forms of the mind an exclusively subjective signification, without being forms of the *Ding-an-sich*, then of course we neither have the right to construct a world by deduction from an *à priori* principle, nor can we hope to reach one by induction. But if subjective idealism is right, and metaphysic an impossibility, then, since all we think is but our thought, natural science, as it is generally understood, is also impossible as *science*. For as it is the science of the real, independent of the subjective, and has nothing but our representations for its objects, natural science can only be the science of human modes of thinking and representing. Nay, even such a science becomes questionable, if we follow out subjective idealism to its logical conclusion in solipsism and illusionism. If I have the right to suppose a subject—my Ego—behind my representations; if I further have the right to suppose the existence of other subjects, independent of my representations, but analogous to my own subject,—then I also have the right to suppose things-in-themselves behind my representations, as their causal conditions. Let it be observed, I only say, *If I have the right* to use Kant's categories transcendentally. Should I assert this right as self-evident, I fall into the dogmatism of naïve realism (as the older materialism does); should I deny it, I sink into the hopeless abyss of illusionism, or into scepticism, which is also a negative dogmatism. If, on the contrary, I am convinced that my nature is not a mere colossal humbug, whose very existence I can rightly neither affirm nor deny, but corresponds to an objective truth, if by the very constitution of my mind I am forced to suppose things-in-themselves behind my representations as their causes, then I stand on the ground of transcendental realism, a doctrine which modern natural science, more or less consciously, accepts. Mr. Sully never tells us what his own theory of knowledge is. Will he doom metaphysics because its constructions are founded on mental representations? Then the doom must equally fall upon science also, since we never can travel outside our perception and thoughts, outside our senses. On p. 170, Mr. Sully says, "our minds have received their structure in connexion with this very order of things, which is to be accounted for; consequently, all ontological deduction of the world has to be carried out by help of conceptions drawn from this very world itself." This, however, is far from being a proof that mind cannot acquire any real knowledge; the essential identity of the subject with the object to be known is the very condition of the possibility of knowledge—and the conditions of the possibility of knowledge form the first principles of all the modern systems of metaphysic.

Having pointed out the worthlessness of metaphysic in general, Mr. Sully might have saved himself the trouble of criticising in particular the metaphysical doctrines of Schopenhauer and Hartmann. It is easy to show the contradictions in Schopenhauer's system, yet, besides the error above mentioned, Mr. Sully refers only to his obscure scheme of Platonic ideas. He does not mention Schopenhauer's greatest mistake of all—the attempt to combine materialism with subjective idealism by declaring the intellect to be the product of matter, and matter itself with the entire empirical world to be the product of intellect.

Passing next to Hartmann, Mr. Sully finds everywhere contradictions and fallacies, which are mainly due to his own misunderstanding. Whenever Hartmann makes use of a simile to illustrate a difficult conception, he at once lays hold of it as an opportunity of reproaching him for his "mythological fancies" and "anthropomorphism". When Hartmann, starting from the conception of the world as a process of evolution, and from the relation of the logical idea to the 'alogical' will, arrives at a negative conclusion, namely, the cessation of volition, the end of the world's existence, the reduction of actual being to potential being; and when further, after carefully explaining that he by no means thinks of predicting what will actually happen, he tries to show how an end of the world-process might be conceived,—Mr. Sully takes it all as a positive statement, and ridicules him accordingly.

The two chapters in which Mr. Sully undertakes to undermine the scientific basis of pessimism, after having, as he believes, overthrown metaphysic in general and the doctrines of Schopenhauer and Hartmann in particular, present a jumble of sophism and prejudice, which it would need a whole treatise to unravel. We can here only briefly refer to his way of demolishing the well-compacted system of the Monism of Will. He seems to believe that a thing or an action has but to be denominated differently to cease to be what it was. According to Schopenhauer and Hartmann, all force is will; the atom is a single act of will. Mr. Sully admits that "if force were proved to be a reality in the physical world, we should, by the very limitation of our minds, be compelled to think of it in terms of our volitions"; but force is "in science proper nothing but a serviceable fiction".[1] If now, according to Mr. Sully, science does not know force, what then is the ultimate and fundamental phenomenon, of which the whole empirical world is the product? *Motion*, he replies. But motion can only be understood as the function of a subject. Even supposing it could be empirically shown that the elementary qualities, heat, light, &c., are caused by motion, we should still have to face the questions: Whence these motions? What is their cause, and what are they? The conception of motion does not dispense with the conception of force; there would be no motion if there were no force. Force, whether we call it so, or call it will, is a metaphysical conception, which seems to natural science a somewhat shadowy thing, that might well be excluded from its sphere. And physics is indeed justified in banishing force from its territory; but the attempt to blot it out of existence is an inroad into a higher sphere, which it is necessary to repel. Mr.

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[1] Force as an entity is a fiction, but force as a phenomenon is thoroughly real, and to Hartmann the act of will is simply phenomenal.

Sully acknowledges no force and hence no will, only *conscious volition;* but volition, as defined by him, is not genuine will, no real volition. It is only a *perception of will*, accompanying a mechanical action. This is plainly enough stated on p. 202: "The great doctrine of the conservation of energy, carried out to its logical results, has led to the theory of animal and human automatism, namely, that all the actions of our bodily organs, voluntary as well as involuntary, are fully explained as the results of mechanical processes." What stamps certain mechanical actions of the human organism as acts of volition, different from mere "spontaneous movements" (not a happy expression for a believer in automatism to employ) and from "instinctive impulses," is simply a conscious perception (1) of its motive, (2) of the aim of the movement, (3) of the character of the action, either as an immediate means to the object in view, or as a link in a chain of means to that object. To be consistent, Mr. Sully should declare volition also to be only a useful fiction, unless he is prepared to acknowledge all bodily functions to be acts of will (volition proper). But this is what he cannot do, for, as he truly says, there is no volition without a representation, and he will not admit *unconscious* representation. Consciousness and perception are synonymous to him; while he tries at length to persuade us that there are no unconscious perceptions, with the effect, however, only of showing us that consciousness is not unconscious, and that he has misunderstood Hartmann's conception of unconscious representation as the *ideal form of real existence.*

He even denies the relatively unconscious, that is to say, the consciousness of the different nervous centres within an organism, which is asserted by Hartmann in the same sense as by Helmholtz, Maudsley, Lewes, and other men of science. It would perhaps be more consistent to go back at once to Descartes, and deny consciousness altogether to the lower animals; for not possessing self-consciousness, they cannot tell us of their consciousness.

Hartmann's view of consciousness as springing from the conflict of will seems to Mr. Sully fallacious, but he himself avoids fallacy only by taking the easy course of having no theory of its genesis, and so saving himself the trouble of explaining how a purely spiritual moment, like a conscious representation, can set in motion the bodily mechanism. Without such explanation, it is idle to tell us that the pessimist falls into the blunder of supposing that will is the parent, instead of the natural and necessary foe, of life's misery, inasmuch as it partly crushes, partly satisfies, desire and longing and other unpleasant feelings, at the same time that it directly aims at the attainment of pleasure. Just as if pessimists ever doubted that the will makes for pleasure and avoids pain! If each act of will could extort its own satisfaction, the world would be a paradise, and there would be no pessimists. But it is just this satisfaction that is difficult of attainment in a world of conflicting acts of will.

We come now to Pleasure and Pain. According to Hartmann, Sensation is a special mode of consciousness. Pleasure and pain, on the physical side, are intensified forms of the specific affections of the different organs; on the mental side, they are intensified reactions of will upon representations. Unsatisfied will is pain, whether the accompanying representation is conscious or (as in the case of many uncertain and indefinite feelings) unconscious. But unconsciously satisfied will yields no pleasure; it is only when the consciousness is sufficiently established to allow of representations and sensations being compared with each other, that the satisfaction of will becomes known as pleasure, as a higher feeling than mere painlessness, which is the normal state. By this conception of pleasure and pain, Hartmann's doctrine that the difference between the two is merely quantitative, not qualitative, loses much of its apparently paradoxical character. On this point Mr. Sully has unpardonably misunderstood Hartmann. He says, p. 120: "Hartmann's account of the manifestations of the Unconscious in pleasure and pain is extremely curious. Pleasures and pains are perfectly homogeneous states, differing in quantity only!" But Hartmann says no such thing. What he really says is, that pleasure and pain as such, *i.e.*, apart from their causes and contention, show, *each within its own sphere*, merely quantitative, not qualitative, differences.

To understand what pleasure and pain really are, Mr. Sully refers us to "any respectable text-book in psychology". "Pleasure and pain are found to arise from certain modes of bodily and mental activity, which are variously defined as those which promote or hinder function." This, however, is an explanation which is only applicable if matter and mind are conceived as one identical substance. From the standpoint of a vague dualistic automatism (pp. 177 and 465), pleasure and pain can be nothing but the signs of approbation and disapprobation on the part of the concrete mind, when the latter, in some mysterious way (heaven knows how!), perceives that its seeing, hearing, speaking, and walking machine is working smoothly, or the reverse. We are far from denying, and Hartmann himself admits, that pleasure often does accompany the promotion, and pain the hindrance, of organic function, but promotion and hindrance are not at all times causes of these feelings. Pleasure may just as well be the cause as the consequent of physical well-being; and if pain is often the offspring of bodily disturbances, it is just as often their parent. Moreover, how is this doctrine to account for the fact that pleasure of a high degree can co-exist with conditions that are destroying health and life? If in this case the pleasure does not arise from the satisfaction of a higher will than is in the cells or organs, it is altogether inexplicable. Again, even on Mr. Sully's own supposition, we can establish an evident excess of pain, the very thing that he disputes. The organism is at all times and from all sides exposed to dangerous influences, both natural and artificial, which hinder and destroy its well-being, and may even depress it for long periods to a state little above death. The influences that promote physical well-being, on the other hand, have to be looked out for and provided, and after all can do no more than raise life to its normal state. This normal state (which is paralleled, in the case of species, by adaptation to natural conditions in the struggle for existence) is the least we can get on with, and it is only our familiarity with pain that makes it appear as positively pleasurable. Every attempt to raise the state of well-being beyond the normal point leads again to pain, though perhaps in another sphere, as when certain spiritual pleasures disorder the bodily energy or *vice versâ*.

If Mr. Sully thus far, in controverting the pessimistic theory, advances nothing in support of optimism, he is no more successful in his strictures upon Hartmann's arguments for the preponderance of pain. Hartmann maintains, (1) that through irritation and exhaustion of the nerves pain becomes more and more painful the longer it lasts, while positive pleasure in the like case is lessened and, prompting the will to seek relief, gives rise to a new pain if relief is not found; (2) that satisfaction of will is recognised as pleasure only where the individual mind is advanced enough to compare the different states of sensation, while the mere fact of unsatisfied will is consciously felt; (3) that the relief which follows a pain constitutes the highest degree of pleasure; (4) that the pleasure of satisfaction is only a fleeting one, while the pain of non-satisfaction lasts as long as the effort of volition. Mr. Sully strives to show that the pleasure that follows relief from pain is a real pleasure, and not mere painlessness. This Hartmann does not doubt, but he holds that, in any general estimate of the value of life according to the balance of pains or pleasures, the whole amount of such pleasure is not only not sufficient to outweigh pain, but is not even enough to redress the scale. Were there no pain in the world, there would not be any of this negative pleasure; but that it would be a good bargain to get rid of all positive pain at the cost of all such pleasure, will be doubted only by those who would assert that poverty is desirable in order that the rich may enjoy the pleasure of alms-giving. With regard to the first of Hartmann's arguments for the preponderance of pain, Mr. Sully admits the fact, but finds in it an argument against pessimism, since the insensibility produced by nervous exhaustion destroys the pain and diminishes the discontent at the absence of pleasure. Now it is true that there is a certain degree of pain at which insensibility sets in. But terrible suffering must be endured before the nerves are paralysed, while as the field of irritation spreads and new parts are affected, though the first may have become insensible, those last attacked are but just beginning to torment. After all, too, this painless exhaustion yields but a short respite: as soon as the nerve has recovered its energy, suffering begins again; or if the complete destruction of certain nerves, or of whole organs, does really bring permanent relief, then it is attended with peril to the existence of the individual. Physicians do not regard the cessation of pain as a favourable symptom as long as the source of the irritation remains or has become intensified. In Hartmann's view, although it is hardly possible to determine the equivalence of a certain quantity of pleasure to a certain quantity of pain, yet "the pleasure must be considerably greater in degree than the pain, if the two are so to counterbalance each other in consciousness as to amount in combination to the state of indifference, and be preferred to this if the pleasure is a little increased or the pain lessened". The true measure of the comparative value of pain and pleasure is the readiness with which a pain is accepted for the sake of an antecedent or succeeding pleasure, or a pleasure sacrificed to avoid such a pain; and even so there will be all manner of individual differences. Yet the mere possibility of such comparison implies an habitual endurance of pain, for to the naïve mind every pain, if it is anticipated with any degree of accuracy, is absolutely great; or if often the opposite seems to be the case, this is due to the careless disregard of pain and determined exaggeration of the value of pleasure.

So much for pleasure and pain of the same kind: it is a still more difficult matter to furnish a standard of comparison of sensual pleasures or pains with mental pains or pleasures. For here the estimate will vary even more with differences of character and intelligence. We are not surprised to find Mr. Sully at variance with pessimists on this head also. He acknowledges its difficulty, but hopes to get over it thus:— "The simplest method is to make the antagonistic feelings simultaneous. In this case it will be found that when they are of equal intensity, they tend to neutralise one another, that is, to produce a resultant state of feeling which has a zero-value." *Probatum est!* It is a pity Mr. Sully does not deal in concrete examples, else we should have liked an illustration.

If, again, we turn from pain and pleasure to their causes, we shall find, as a general rule, that the natural and artificial circumstances that are productive of pain are present everywhere and at all times, while those productive of an overbalancing pleasure are limited and difficult of attainment; unless indeed we are content to regard the mere painless modifications of organic sensation as pleasures, as Mr. Sully does with the visual impressions of form and colour. As for *ennui*, on which Schopenhauer laid so much stress as the foe of human well-being, Mr. Sully regards it as only "the penalty inflicted on us for the non-fulfilment of some normal function, or the reminder which is given us by the natural impulse of an organ to discharge its recruited store of energy". Now certainly *ennui* is not in the common sense of the word an external evil, like poverty or sickness; but the circumstances that prevent us from actually removing this removable evil are very often either social or political ones, or are material organic conditions of our own body which are outside the mind of the individual. Many evils might be annihilated, if we so willed with all our power; unfortunately it only too often happens that we cannot will that which is reasonable and, if not positively pleasurable, at least painless. This troublesome question of the *Nicht-wollen-können* will, however, meet us again. Meanwhile, let us turn to Mr. Sully's criticism of Hartmann's *à posteriori* proof.

First of all, we are told that Hartmann himself "cuts off the surest avenue to the facts" by rejecting "individual testimony as an untrustworthy source of information on the subject," men being disposed "to magnify the value of life through the very action of unconscious will". Mr. Sully here misunderstands Hartmann. The latter simply warns us against a false estimate of the past life, past pains being so readily underrated *because* they are past; whilst the passing pleasure is greatly magnified. We see this happy gift of the human mind well displayed in the frequent talk of aged people about "the good old times". If it were possible to examine hourly a large number of men as to their actual general feeling during a long time, and to put on record the result, Hartmann would have no objection; but the result would be very different from that yielded by the beautified notes of memory. It is only in this sense that Hartmann attaches a superior value to objective testimony—not from any disposition to make light of the individual's experience.

Hartmann's view of the various circumstances of life does not commend itself to Mr. Sully. He gives the list: (1) Health, youth, liberty and material sufficiency; (2) Hunger and love; (3) Pity, friendship and family happiness, (4) Pride, ambition and desire for dominion; (5) Religious edification; (6) Immorality; (7) Enjoyment of science and art; (8) Sleeping and dreaming; (9) Pursuit of wealth; (10) Envy, vexation, &c.; (11) Hope; and then exclaims, What a classification! But, though the reader may expect it, he does not offer a better one. It was, in truth, no part of Hartmann's intention to review all the internal and external circumstances and conditions of life that result in feeling. He held that an *à priori* proof, based on that of Schopenhauer, but modified at some points, was quite sufficient for his purpose. Having adopted the inductive method, however, he felt that some amount of *à posteriori* proof was necessary, and so he dipped into the abundant materials at his command, in a way indeed that may seem superficial to the hypercritical. Mr. Sully especially objects to Hartmann's comprehensive treatment of labour, and to the omission of "motor activity," "genuine humour," and "the daily fulfilments of obligation of all worthy citizens" as sources of happiness "both to the agent and to others". But, when Hartmann says that labour generally brings more pain than pleasure, he understands *labour as such* and apart from the aims whose attainment, or even the mere hope of whose attainment, is or may be pleasurable. When Mr. Sully speaks of labour as a source of happiness, he means the aim arrived at. When a workman enjoys his labour, it is the thought that the produce of his toil will protect himself and his family from want, with the hope that a time may come when he may live without this labour, that is the real source of his enjoyment. It will also satisfy his ambition to see his handiwork sought for and acknowledged, while, if his work is such as to admit of the display of inventive fancy, "the interest of pursuit" (as Mr. Sully rightly suggests) will be satisfied as he realises the ideas of beauty or utility in his works. Work, however, as mere bodily activity, is hardly a source of pleasure. If the physical condition is good, the pleasurable feeling of health is not readily disturbed by it, though even here fatigue is apt to set in towards evening, while in the case of the elderly, the weak, or the sensitive, the fatigue may even extend itself to the first working hours of the succeeding day. So to the professional man and the man of business the labour of each day is pleasurable. chiefly as satisfying their desire for wealth, self-respect, ambition, and vanity, or the loftier sentiments of patriotism, humanity, and love to their fellow-creatures. The case of the agricultural labourer or the factory hand is somewhat different; the pleasure of their daily work being limited to that of winning their daily bread, or, at the best, satisfying their self-respect and vanity. It is only in the field of the fine arts and sciences, and not always even there, that we find, as Hartmann himself is careful to admit, work as such to be a pleasure. As for that which Mr. Sully sets down as the most important ingredient of happiness, namely, "what is known as mental tone or the underlying sense of well-being," this ought clearly to be reckoned under the head of health, which stands first in Hartmann's classification. Health and the accompanying feeling of well-being are simply conditions that *ought to be*, life being presupposed as necessary, and in general we do not think anything about them until we are deprived of them. Even where they may be deemed as positive pleasures, as in the aimless gambols of children and young animals generally, there is mixed up with them another motive to pleasure, namely, the play of merry fancies, expressed by inarticulate sounds, or movements of the countenance. The equilibrium, however, so essential to well-being is easily disturbed, so that by the time the juvenile stage is past a feeling of lassitude and heaviness, a residuum of pain in all the organs except those of the special senses, is nearly always present, though in so slight a form in the so-called healthful state as to be covered by the manifold impressions of the outer world, and to emerge into consciousness only during moments of reflection and solitude.

It is another mistake of Mr. Sully's to suppose that muscular exercise is the source of pleasure in the arduous sports of boys, or in the chase and long pedestrian rambles of grown men. In the case of the former it is the social impulse and the desire of showing strength and adroitness that give to their games their chief stimulus and satisfaction. In pedestrian rambles, again, the pleasure does not lie in the mere act of transferring the weight of the body from one foot to the other throughout a certain space of time, a pleasure which might equally be enjoyed by the recruit in the drill-yard, or the prisoner at the treadmill. The pleasure comes from the change which rambling brings to sedentary people, living in towns: the farm-servant, who daily walks behind the plough, finds his pleasure rather in rest or in simple rural games.

As for humour and laughter, no one, certainly no German pessimist, will doubt the value of the power "to transform all the lighter evils of existence into sources of an after-gaiety". Genuine humour, indeed, is bound up in an especial manner with pessimism, the object of laughter being generally something that *ought not to be*. Throughout the whole range, from the harmless merry laugh to the scornful laugh of despair, we find the same cause—the incongruity of a certain reality with the representation or idea which we or others have of it. And, though it is pleasant to laugh, we generally laugh at somebody's cost, and feel that as pleasure which gives pain to another. If laughter takes its motive from poetry, it falls within the domain of art; and a philosopher with Hartmann's artistic gifts is little likely to undervalue whatever thereto belongs. He only draws the limits of the fine arts more strictly than Mr. Sully does, banishing from their sanctuary those feelings of vanity, ambition, curiosity, love of the adventurous, &c., &c., which are sometimes imported into them. Mr. Sully has nothing to say about Hartmann's other divisions of hunger and love, of pity and family happiness; the need of concrete treatment becomes too pressing for him there. He censures Hartmann's examination of grief and vanity, and with the remark that "the reader is by this time, perhaps, pretty well convinced of the utterly flimsy and meretricious character of Hartmann's examination of human life," he passes on to consider the conditions of happiness in the future.

Mr. Sully finds that, in spite of all the efforts of philosophers from Aristotle to H. Spencer, "a systematic science of hedonics has, as yet, no existence," and he aims at supplying the want by "a truly scientific attempt to define happiness and its conditions, and to determine whether the average external circumstances of human life realise these conditions" (p. 263).[1] Now at first sight it does certainly seem easier to determine whether a person is happy than to say whether in the same person's life pleasure has predominated over pain; not because happiness is simply "a peculiar compound of pleasure" (p. 279), but because happiness may include a certain amount of pain, without ceasing to be counted as happiness. According to Mr. Sully, "a wise man" will not aim at single pleasures, but at those fixed and permanent relations of life which are ever sources of pleasure and safeguards against pain, and which, from being the originators of happiness, come to be identified with it. Surveying his mental and physical faculties, he will strive to gain wealth and riches; for the satisfaction of his inner life he will surround himself with friendship and love; and with works of charity—so far as they do not disturb his personal comfort—he will gratify his sense of pity. He will seek to counteract the bad influences of weather and climate by hardening and training his body, and enlarge his ability to enjoy mental pleasures by the acquisition of knowledge, which extends his mental horizon and improves his artistic skill. He will render his mental life, the sphere of sensations, thoughts and fancies, happy by the power of conscious volition, being careful to exclude all painful and sad representations, whether recollections or anticipations, and to cultivate sweet memories and hopes of a future more and more bright. Nor is it merely the attainment of these ends that is to be called happiness: the very act of striving after them is a source of felicity, since all (?) the varied activities of self-culture and bodily training are pleasurable. Thus, "when all the worst evils of life, such as sickness, bereavement, &c., are averted—when the conditions of large schemes of agreeable activity are present, when the person concerned manifests an habitual pleasurable interest in the events of the world which immediately surrounds him, and when the whole key of life is that of quiet, unfaltering devotion to large, inspiring and yet rational ends, we may be said to have a fairly unambiguous presentation of human happiness". "Observing such a type of existence, we take upon ourselves to assure the person that he is and must (!) be happy at moments when he is disposed to doubt the fact." "We have the fact that happiness has been and is now being realised. By this fact alone the fundamental idea of modern pessimism is amply refuted."

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[1] Let us note, in passing, one piece of inconsistency. When criticising the theory of Schopenhauer and Hartmann that pleasure and pain are the contentment or non-contentment of an act of will, Mr. Sully, it will be remembered, advised his reader (p. 221) to consult any respectable text-book in psychology, to learn that this theory is fallacious, and that pleasure and pain "arise from certain modes of bodily and mental activity, which are variously defined as those which promote or hinder normal function" &c. On p. 272, however, he has changed his mind, and points out how inadequate this doctrine is to explain the facts of feeling. There is good ground for the hesitation, but Mr. Sully should have remembered this when he previously opposed a theory which not only recognises the truth of the other doctrine within certain limits, but supplies its deficiencies.

So far Mr. Sully, to whom we would say in reply: The fact that there are persons, and will be, at least as long as the development of our earth goes on undisturbed, whose life is to be declared a happy one, is not denied by pessimism. But the question with the pessimist is: (1) Has such a happy life really a higher value than pleasureless, but also painless, non-existence? and: (2) If happy life really is preferable to non-existence, what is the proportion of this self-justified existence to that which we may call unjustified, as not including a greater amount of pleasure than of pain? To the philosopher, existence is not more reasonable, has no higher value, than non-existence; existence can become superior to non-existence only by its content. Mr. Sully everywhere conceives life as something that ought to be. This no doubt it is to the simple unreflective mind, from the fact of its being willed. But the point to be settled is, whether this willing is justifiable.

Mr. Sully makes the victory for optimism too easy when he claims the simple normal action of the senses as positive pleasure, and asserts that labour as such brings more pleasure than pain. Self-culture and mental improvement likewise are regarded by him as in themselves pleasurable. And, no doubt, in many cases the victory our reason gains over our instincts or over our bad impulses and habits, is accompanied by a pleasurable feeling of satisfaction; but in other cases the suppression of impulses condemned by reason is so painful that the succeeding pleasure would be no equivalent for it, if the future consequences were not taken into account. Besides, reason does not always get the victory, having often to be contented with such gains as only vanity can find satisfactory. Notwithstanding this, Mr. Sully conceives the way to happiness as a state of happiness itself, though he has to admit (p. 349) "that the quality of the happiness reached by most of those who are undoubtedly worthy to be called in a sense happy is anything but high if measured by an ideal standard". The question, then, as to what chance the majority have of securing this modest happiness becomes the more pressing. Mr. Sully allows further that "there are many persons who cannot, by any stretch of probability, be pronounced happy," the fact of suicide, of struggle with want and difficulty, and of sickness everywhere, sufficiently proving this. As one of the hindrances to happiness, he mentions the "gloomy temperament which seems to incapacitate one for accepting any of the cheering gifts of life," and adds, "oftener it is a weakness of active impulse and of will which shuts the person out from all those fields of interesting occupation which are the sole guarantee of an enduring happiness". Thus millions of men never have the opportunity of tracing a reasonable plan of happiness, though their heart craves intensely for it; and they struggle painfully to seize it by single unsystematic, and therefore useless, efforts. Now to us it seems quite as great a misfortune to miss the path to happiness, as to have no path at all. Not only are there many who refuse to see the way to happiness, there are also many who *will* their own misery and with full consciousness tread the path to unhappiness. And what more tragical fate than to be forced by one's inmost nature to struggle for that which to the struggler brings nothing but pain and destruction? Mr. Sully takes too superficial a view of the doctrine of determinism when he says it merely declares "that men will not aim at a thing till they feel the appropriate motives—in other words, till they begin to wish to possess it". For when the way which leads to happiness is clearly known, how many obstacles have to be overcome, how many enemies conquered, before the goal is reached! Even the mere protection against want is not so light a thing as Mr. Sully seems to think. Those who suffer from hunger and cold in our large towns, and the starving thousands of India, are they all people who did not will to work? Is it the case that the man, whose deepest feelings of love, friendship and trust in mankind are wounded, can seek and find satisfaction and happiness in other directions (p. 353)? Is sickness, whether of ourselves or those we love, less painful because, as "wise men," we are sure that under given circumstances a certain thing may or must happen? Are "the rough street Arab" and "the ragged urchin" (p. 351) really less to be pitied, because in moments, when the stomach does not rebel, the busy world around them makes them forget their miserable condition and the fact that within six hours they will be hungry without the means to satisfy their hunger? As regards death, Mr. Sully holds that, so far from being considered an evil, pessimism should laud it as the saviour from life's misery; while the consciousness of the shortness of life and of the certainty of death, instead of making life less valuable, should really enhance its pleasure, as long as it lasts. To the pessimist, who has learnt to look upon life from a philosophical point of view, his own death is indeed no evil (we say nothing here of the manner of death); the summons to quit the ranks of the great army of sufferers is welcome, if only it does not bring too great sorrow to others. The death of those we love is, however, at all times an evil, even when we comfort ourselves with the thought that they are now safe from fate's cruel blows, nor can any pessimistic phrases make it otherwise; while to the optimist, death is an evil *κατ' ἐξοχήν*, whose very thought is the destroyer of every joy. The frivolous and stupid may succeed in forgetting it, but never the "wise man," in face of the thousandfold reminders that surround him.

Turning next to the question of future progress, it is Mr. Sully's opinion that this "is a much more definite and tractable problem than that of the relative amount of happiness and misery co-existing now or at any past period in the world's history". And "if progress makes for an increase of happiness, it matters but little what are the exact proportions of joy or sorrow in the world at this fleeting point of time. Provided only happiness be shown to be possible under certain conditions, the demonstration that the onward movement of things tends, however slowly, to the fuller realisation of these conditions suffices to redeem the world as a whole from the damning charge of the pessimist." This, however, can only be admitted, if it be proved, first, that the peculiar conglomerate of feeling which Mr. Sully calls happiness, seems to an intellectual mind really preferable to the insensible state of non-existence; and, secondly, that what we call progress really acts in the supposed direction. But this Mr. Sully has not succeeded in proving. What makes his "wise man" an especially happy man is his bondage to illusions, his light-mindedness, which in spite of all present disappointments lulls him again and again in the flattering hopes of a better future, and his never-ceasing impulse to action, which prevents him from self-reflection. But if the man in question is really a wise man, sooner or later the moment of disillusion will come, and it will then be of no use to assure him, as Mr. Sully does, that he is and must be happy. To meet this contingency, Mr. Sully can only suggest a sustained faith in a happier world to come, or, failing that, at least in a happier future of posterity. It is this future that we will now for a little consider.

Historical progress is but one aspect of progress in nature generally. The idea of evolution, long since adopted in philosophy, has become familiar in natural science, especially through the labours of Mr. Darwin and his theory of natural selection. It is not for us here to judge how far this theory, as a mere mechanical principle, is able to account for the origin of species. Suffice it to say that modern philosophy, with Hartmann at its head, acknowledges the fact of the progressive influence of natural selection Now in man evolution seems to be limited to a higher development of the brain and a finer construction of the nervous system. This improvement is the correlative of a higher intellect, a superior mind, which is the true mainspring of historical progress. Were history determined by the natural passions only, there would be nothing new under the sun; all progress depends on an increase in intelligence, producing *new motives* to which the lower passions attach themselves. It is not, however, the case, as Mr. Sully seems to think, that the operation of natural selection within the mental sphere tends to make the process of evolution at all less cruel. When the earliest prehistoric races overcame their animal kindred, from which as yet they differed but little, by greater versatility and shrewdness, or when they fought among themselves with teeth and fists, the pain of defeat in such rude struggles was no greater than now when we fight with lead and iron or the arts of diplomacy, or when by superior industry one nation compasses the ruin of another. The extinction of one species by another more prolific does not seem to have been attended by more suffering than is involved in the rivalry of races, even though the doomed race is allowed slowly to starve according to peaceful treaty and amid assurances of the kindest regard for its true welfare. Such things will continue as long as the evolution of nature and mind goes on. The tearing teeth give way to the persuasive tongue and the skilful pen; the bare fist and the stone-weapon are replaced by gun and rifle, and these in their turn may give place to the votes of an international congress. But in every case those who succumb must suffer, though the pain may be transferred almost entirely from the physical to the mental sphere. Individuals or races are evermore acquiring a predominant intellectual influence over others, and a two-fold suffering is the natural result. The exercise of power is repressed in the superior few by the multitude of inferiors, while these find it troublesome and dangerous. Thus both sides are supplied with motives for a struggle, which is none the less a real struggle for existence, because its objects are ideas. The sympathy and benevolence referred to by Mr. Sully (p. 387) cannot and will not prevent this struggle; at the best they will only serve to heal the wounds which it has caused. All that humanity joined to prudence can do, is to alleviate and limit existing evils; and it is only when benevolence has ceased, because there is no sphere for its activity, that we can say that a positive step has been taken towards general happiness. According to Hartmann, the action even of the best form of government is but of a negative character. Mr. Sully, on his side, would credit the state of the future with unlimited powers, including even the checking of over-population. Now many states have indeed tried to restrain pauperism by putting obstacles in the way of matrimony, but the result has always been the same—the multiplication of illegitimate births and prostitution. Or, if men should become so prudent as to restrain their sexual impulses from a regard to their own comfort, and from pity for the generations to come, then the process of training for such wisdom would certainly be a severe one, and what would be gained in ease from family cares would be dearly paid for by the pain resulting from the suppression of instinct. While, if the very instinct of generation could by a "scientific mind" be supposed eradicated, who can appreciate the effect upon the relation of the sexes—a relation from whose soil have sprung the most venomous thorns but also the sweetest blossoms of happiness, and which has supplied the most stirring motives to human activity?

No doubt, knowledge is expanding in all directions, and with the increase of knowledge of nature there is an increase of our power over it. But hitherto all positive increase of general wealth has had the character of a robbing of nature, and a time will come when the productiveness of the whole earth can no more be increased. Nevertheless, pessimists do not deny that increase of knowledge, directly as well as indirectly, tends to lessen and even remove many evils, and Hartmann, in particular, joins with his pessimism a political and social optimism that seems quite beyond the comprehension of Mr. Sully. It is generally admitted that epidemics may be prevented, or, where they already exist, may be confined within narrower limits by a more rational sanitary policy and improved medical art, while many diseases may be made wholly to disappear by proper physical training and the discovery of new remedies. Yet as long as the doom of death lasts, sickness and infirmity with its attendant sufferings will go before. Hartmann does not question the progress of the medical art, but only doubts whether it can keep up with the rapid increase of the more complex nervous diseases, and of that sensibility which causes slight disturbances of the normal functions to be more acutely felt than were greater disturbances in the earlier stages of man's existence, in consequence of the finer nervous organisation which is the condition of higher intelligence.

The future will doubtless heal many wounds which now seem incurable. Even the social question will some day find a solution, though no one dare say whether it will be by gentle or by violent means. But the great sources of suffering will still abide in the future, for the reason that they spring from the very conditions of life. In fact, just in proportion as the different evils arising from passing social and political conditions are found to vanish, will the fact become more and more evident that life itself is the worst foe of happiness. Even if Mr. Sully had succeeded in proving that in the far-off future those existences that we call happy will become the majority, the fundamental idea of pessimism would still be far from being refuted. Should it be the doom of organic creation to perish by a general refrigeration, surely the sum total of pain arising from the pressure of more and more unfavourable climatic conditions on the animal and vegetable kingdoms would be infinitely greater than during the period of improving conditions; for with every backward movement a developed consciousness would have to be repressed. And, even if the cooling of our globe were to cease at the stage most favourable to human life and progress, the existence of a happy race during an indefinite future would tell against pessimism only on the supposition that the happy humanity of the future and the suffering humanity of the past and the present are one and the same. This is the idea involved in the 'panlogism' or 'panthelism' of Hartmann, but has no place of right in the materialistic automatism and will-dualism of Mr. Sully. If there is no absolute unconscious spirit as the entity common to all the separate conscious minds, the distant future is absolutely nothing to me of the present; it is only what I myself suffer or enjoy that can incline me to pessimism or optimism. After me may come the deluge or the millenium, but it is a matter of indifference to me, if my Ego is a mere cerebral phenomenon, the product of an aggregation of mere material atoms.

We will not follow Mr. Sully in his inquiry into the internal and external sources of pessimism and the causes of its rapid dissemination, but only note that he has too intelligent and keen an eye for natural, political and social shortcomings to throw himself unreservedly into the arms of optimism. He considers that, according to the side from which they are regarded, the facts may land us either in optimism or pessimism. In this we agree with him, but not when he goes on to say that the main source of pessimism is an abnormal sensitiveness to pain, and that pessimism itself is to be regarded in a large measure as a pathological phenomenon, which will cease to exist when the medical science of the future shall succeed in overcoming the peculiarities of temperament in which it is rooted (p. 444). With certain limitations this may be true in cases of unreasoned pessimism—*Weltschmerz*, but not of philosophical pessimism, which, uninfluenced by subjective feelings, rests exclusively on objective observation, and counts individual sensation as an object among other objects. Whatever can in this way be alleged against pessimism, can with equal force be alleged against optimism, and there is no reason why defects of temperament should be easier to eliminate in the one case than in the other. Nor is the attempt to hold the balance between optimism and pessimism that most worthy of "the man of philosophic mind" (p. 463); it should rather be to find the synthesis of both. To the eye of cool reason the world seems as good as possible because it is a real logical process; in the eudaemonistic point of view, it is worse than no world, because the path whereon the *logos* strides from victory to victory is a path of suffering to the creature.

So far as the "how" and the "what" of the world is concerned, Mr. Sully's own "meliorism" does not differ from Hartmann's social and political optimism; but if meliorism includes the hope that the future will justify the fact *that* a world exists, it merely illustrates what Hartmann calls "the third stage of illusion".

We may finally remark, in thus closing our long criticism of a "criticism," that it is not because they have to pay high taxes, or to do military service for their country, nor yet from any humiliating consciousness of the superiority of French civilisation and luxury, that so many Germans confess to Hartmann's pessimism;

but because a time of material prosperity and of fulfilment of national hopes and wishes is a fit time to show how small an influence a little more or a little less of luck in external conditions can have on the value of life. And, if we have succeeded in convincing some readers that German pessimism has not been quite annihilated by Mr. Sully, and that it might still be worth their while to study its true meaning in the works of Schopenhauer and Hartmann, our labour has not been in vain.

O. PLUMACHER.

NOTE.—It is impossible to explain such remarks as those which Mr. Sully has thought fit to make on Hartmann's style and method at pp. 454-7, except on the assumption that he has a rooted prejudice against the great German thinker. They could hardly have been penned if Hartmann's works had already (by translation) become generally known. In dealing with the opponents of Hartmann, his taste in the matter of style is somewhat less delicate, else he would hardly call the flat witticisms of J. C. Fischer "pleasantly satirical," and find the attack of a certain Dr. Stiebeling "rather effective" (p. 204). He does indeed speak of an anonymous work, *Das Unbewusste vom Standpunkt der Physiologie und Descendenztheorie* (1872), as "a much more thoughtful demonstration of the untenability of Hartmann's biological assumptions"; but he evidently little suspected what was to be revealed in a second edition (1877), that this work, whose truly scientific character was fully recognised in Germany, was the production of none other than Hartmann himself! Hartmann has thus given unmistakeable proof of being no mere layman in natural science; and, in particular, he has shown that it was from no ignorance of what the mechanical principle of Darwinism is able to explain that he felt himself bound to reject it in part, and to declare the necessity of adopting instead a spiritualistic teleological principle, to which the other is but as means to end.

VI.—PHILOSOPHY IN THE UNITED STATES.

THERE are nearly 300 non-Catholic colleges in the United States, most of them chartered by the legislatures of their respective states, and conferring the degree of A.B. upon their students at the end of a four years' course, and A.M. three years after graduation. In nearly all these institutions certain studies, æsthetical, logical, historical, most commonly ethical, most rarely psychological, are roughly classed as philosophy and taught during the last year almost invariably by the president. The methods of instruction and examination are so varied that it is impossible in the space at our disposal to report in detail upon the nature and value of the work done in these institutions. More than 200 of them are strictly denominational, and the instruction given in philosophy is rudimentary and mediæval. More than 60 which in the annual catalogue claim to be non-sectarian are, if not pervaded with the spirit of some distinct religious party, yet strictly evangelical. Indeed there are less than half a dozen colleges or universities in the United States where metaphysical thought is entirely freed from reference to theological formulæ. Many teachers of philosophy have no training in their department save such as has been obtained in theological seminaries, and their pupils are made far more familiar with the points of difference in the theology of Parks, Fairchilds, Hodges and the like, than with Plato, Leibnitz or Kant. Many of these colleges were established by funds contributed during periods of religious awakening, and are now sustained with difficulty as denominational outposts by appeals from the pulpit and sectarian press. The nature of the philosophical instruction is determined by the convictions of constituencies and trustees, while professors are to a great extent without independence or initiative in matters of speculative thought. The philosophical character of some institutions is determined by the conditions attached to bequests. A few are under the personal and perhaps daily supervision of the founders themselves, who engage and discharge the members of their faculties as so many day-labourers, and who are likely to be religious enthusiasts or propagandists.

The traditional college-*régime* in the United States was designed to cultivate openness and flexibility of mind by introducing the student hastily to a great variety of studies, so that his own tastes and aptitudes might be consciously developed as guides to ulterior and more technical work. The method of philosophical indoctrination, in striking contrast to this, seeks to prevent the independent personal look at things, and to inoculate the mind with insidious orthodoxies which too often close it for ever to speculative interests. The great open questions of psychology and metaphysics are made to dwindle in number and importance as compared with matters of faith and conduct. Some of the professorlings of philosophy are disciples of disciples of Hopkins, Hickok, Wayland, Upham, Haven. Most have extended their philosophical horizon as far as Reid, Stewart, Hamilton. Many have read Mill's *Examination of Hamilton*, chapters of Herbert Spencer, lectures of Huxley and Tyndall, and epitomes of Kant, Berkeley, Hegel, and Hume. Others, fewer in number, have studied compendious histories of philosophy like Schwegler and Ueberweg, have read Mill's *Logic* and Taine, have dipped into Kant's *Critique*, and have themselves printed essays on Spencer, Leibnitz, Plato, &c., in religious periodicals, have perhaps published compilations on mental or moral science, and are able to aid the sale of small editions of their works by introducing them into their own classes as text-books. Others, fewer yet, to be spoken of later, have had thorough training, and are doing valuable and original work. It is, in any case, plain that there is very small chance that a well-equipped student of philosophy in any of its departments will secure a position as a teacher of the subject. He may find a career as a writer, editor, or instructor in other branches, or he may bring his mind into some sort of platonising conformity with the milder forms of orthodoxy and teach a philosophy with reservations. That most of the instructors find the limitation of their field of work galling is by no means asserted or implied. Many of them feel no need of a larger and freer intellectual atmosphere. They have never been taught to reason save from dogmatic or scriptural data. Where little science is taught there is a certain dignity attached to their department above all the others, which is as unfavourable to their own advancement as it is to the spirit of persistent inquiry on the part of the students. Summary and original methods of dealing with speculative questions are far more commonly found than philosophical erudition or careful criticism. Yet there is an almost universal complacency in the degree of liberality attained which is in strange and indeed irrational contrast to the feeling with which a philosophy which is entirely emancipated from the theological yoke is regarded. Andover is well pleased to be thought freer from the rigidity of dogma than Princeton, and Oberlin claims more warmth of feeling and less tyranny of creed than either. While slight differences among the philosophical *idola* of orthodoxy are thus disproportionately magnified, all these institutions unite in impressing upon their students the lesson that there is an abyss of scepticism and materialism into which, as the greatest of all intellectual disasters, those who cease to believe in the Scriptures as interpreted according to the canons of orthodox criticism, are sure to be plunged.

The spirit and aims of philosophical instruction in very many of the smaller colleges have found an admirable exponent in the Boston Monday lectureship of the Rev. Joseph Cook, whose discourses, now published in several volumes, have had an immense influence upon the semi-theological philosophy of all such centres of learning as we have just characterised. In these forty-minute lectures before immense popular audiences, art, literary criticism, politics, religious history, science and systems of thought are discussed with much display of erudition and with great similitude of candour. Long lists of names and title-pages are read, succinct and often epigrammatic summaries of philosophical and religious systems and tendencies are given; recent discoveries in science are explained or illustrated by diagrams and by illuminated microscopic preparations, until the hearers are convinced that, by a short and easy method now first displayed, the very kernel of truth has been shelled from books and nature by a master-hand. Then, with much liberality of interpretation, scriptural doctrines are compared with these results, all in a conciliatory spirit: but wherever the teachings of science or philosophy are judged to vary from those of Scripture, the supreme authority of the latter is urged with all that intensity of a fervid and magnetic personality which makes dogmatism impressive and often even sublime. The mere brute force of unreasoned individual conviction, which Hegel so wittily characterises as the animal kingdom of mind, has a peculiar convincing eloquence of its own in religious matters, which, acceptable as it often is to faith, has long been one of the stumbling-blocks in the way of philosophy in America.

Another reason for the backward condition of philosophy in most of these institutions is found in their poverty. A few of them were established by real-estate companies to help the sale of land. By the negligence of the more worthy members of trustee-boards, together with mistaken provisions to fill vacancies, others have fallen under the control of ward-politicians, and professorships are retained or declared vacant by a scarcely better than popular suffrage. Still others are under the immediate control of state-legislatures, which have it in their power to reduce or even to withhold the annual appropriation. Nearly all of them are poorly endowed, and some are entirely without funds save those accruing from tuition-fees; and thus, so numerous are they, so sharp is the competition for patronage, and so quick and sagacious is parental jealousy of any instruction which shall unsettle early and home-bred religious convictions, that it is not surprising that there is little philosophical or even intellectual independence to be found in these institutions. Again the faculty or *corps* of professors generally consists of from three to ten men, or occasionally ladies, who must instruct in mathematics, natural and physical science, ancient and two or three modern languages, political and literary history, oratory, theme-writing, &c., and who are thus obliged to spend from three to six hours per day in the class-room. Thus fatigue, coupled with the dissipation of teaching miscellaneous subjects, generally renders original thought and research impossible even where otherwise it might have led to valuable results.

While thus business conspires with Bethel to bring mental science into general disfavour, the average American college is in no position to lead or even to resist popular opinion and sentiment, supposing it inclined to do so. The shrewd practical money-making man, even in one of the learned professions, can make little use of philosophy; indeed it is liable to weaken his executive powers and make him introspective and theoretical. The popular philistinism which we have heard impressed as a weighty philosophical motto in the exhortation, "Look outward not inward, forward not backward, and keep at work," and which seems no more rational than the superstitious aversion to science in the Middle Ages, has been strangely efficacious against philosophical endeavour here. Hence all branches of mental science have come to be widely regarded as the special appanage of a theological curriculum, where despite the limitations above described a little speculation is a trifle less dangerous than for a practical business man.

The above, however, we hasten to say, is the darker side of the picture and is truer in general of Western than of Eastern colleges. The most vigorous and original philosophical instruction is almost everywhere given in ethics, though like nearly all other subjects it is taught from text-books. Those most commonly used are Alexander's *Moral Philosophy*, Hopkins's *Law of Love and Love as a Law*, Wayland's and Fairchild's *Moral Science*. Calderwood's and Peabody's treatises have lately been introduced into three of the larger institutions. Portions of Cicero's *De Officiis* we also find in three catalogues as part of the required course in ethics. The work with text-books is commonly supplemented by lectures where ethical principles are applied to law, trade, art, conduct, &c., in a more or less hortatory manner. The grounds of moral obligation are commonly deduced from Revelation, supplemented by the intuitions of conscience, which are variously interpreted. The practical questions of daily life are often discussed in the class-room with the professor with great freedom, detail and interest. Current social or political topics are sometimes introduced, and formal debates by students appointed beforehand by the professor, and followed by his comments, may occasionally take the place of regular recitations and lectures. In one large institution each member of the class in ethics is required to write a thesis during the senior year, to be read before the class on one of such topics as the following, which we copy from a printed list:—"Is it right to do evil that good may come?" "Is falsehood ever justifiable, and if so, when?" "The moral character of Hamlet." "My favourite virtues and why?" "How far is Plato's Republic truly moral?" "Discussion of the conflict of duties, *e.g.*, in Jephthah, Orestes." "The Utilitarianism of J. S. Mill." "How far may patriotism justify the motto, *My country right or wrong*." "The moral difficulties in the way of civil service reform." That the subjects thus attempted are far too vast and general for thorough discussion by the students who essay them cannot be denied, but it is possible that definite and permanent centres of interest in the infinite questions of ethics may often be thus established in the most immature minds. On the whole the average student completes his course in moral science with the conviction that there is a hard and fast line between certain definite acts and habits which are always and everywhere wrong, and others which are right; that above all motives, circumstances, insights, the absolute imperative of conscience must determine the content as well as the form of actions. The psychological nature and origin of conscience are questions which have excited very little interest.

The theory of the syllogism is taught in nearly all the colleges from elementary text-books, of which Fowler's *Deductive Logic* and Jevons's smaller treatise, which have lately come into quite general use, are the best. As a rule but little time is devoted to work in this department, and the methods of induction are often entirely ignored.

Mental philosophy is usually taught during perhaps half the senior year from such text-books as Bowen's abridgement of Hamilton's *Metaphysics*; *The Human Intellect*, by President Porter of Yale College, which has been epitomised in a smaller volume; Haven's, Upham's and Wayland's *Mental Philosophy*; Everett's *Science of Thought*; Hickok's *Rational and Empirical Psychology*. Schwegler's *Outline of the History of Philosophy*, of which Seeley's translation is far superior to that of Stirling, is coming into use in the larger institutions. Locke's *Essay*, portions of Berkeley, of Kant's *Critique of Pure Reason*, and even Mill, Hamilton, Spencer's *Psychology*, Bain, and Taine, are also occasionally introduced.

Æsthetics, so called, is taught in many colleges from various text-books, such as Day, Bascom, Kames's *Elements of Criticism*, and compendiums of art-history. An immense range of topics, from landscape-gardening and household-furniture to painting, poetry, and even music, are summarily treated, and more or less arbitrary psychological principles are laid down as fundamental canons of taste. The work done in this department we regard as not merely worthless, but as positively harmful. No attempt is made to explain the ulterior causes or the nature of feelings of pleasure and pain; and without museums, galleries, or even photographs, little can be learned of the history or principles of art.

Butler's *Analogy*, Natural Theology, the Evidences of Christianity, Pedagogics, and the Catechism, are taught in a few institutions as a part of the philosophical discipline. The question of the order in which the above studies should be pursued, was lately brought forward in a general convention of college officers, but has attracted little attention. In at least four of the larger theological seminaries, courses of lectures on the history of philosophical speculation are given by the professor of systematic divinity. In very many of the higher schools and colleges for female education, especially if they are under evangelical control, instruction is given in mental science. In the annual catalogues of the very smallest and poorest of these colleges, we have seen one teacher dubbed professor of mental, moral and physical science, and in another of natural and intellectual philosophy. Literature, history, mathematics, and more often political economy, may be found as part of the work of the instructor in philosophy.

The serious and introspective frame of mind which religious freedom and especially pietism tends to develop; the enterprise and individuality which are characteristic of American life, and which have shown themselves in all sorts of independent speculation; the principle of self-government, which in the absence of historical precedents and tradition inclines men to seek for the first-principles of political and ethical science, have combined to invest semi-philosophical themes with great interest even for men of defective education. From the pulpit and even in the adult Sunday-school class or the debating society, in the club-essay and the religious press, metaphysical discussions are often heard or read, and not infrequently awaken the liveliest discussions. Yet, on the other hand, dogmatism and the practical spirit have combined thus far quite too effectually to restrain those who might otherwise have devoted themselves to the vocation of thinking deeply, fearlessly and freely on the ultimate questions of life and conduct. If "philosophers in America are as rare as snakes in Norway," it is because the country is yet too young. The minds of business and working men, whether sceptical or orthodox, have short, plain, and rigid methods of dealing with matters of pure reason or of faith, and are not always tolerant of those who adopt other and more 'unsettling' ones. If, however, we may find in Hegel's *Phenomenology* a program of the future, the hard common sense which subdues nature and organises the objective world into conformity with man's physical needs will, at length, when it has done its work, pause in retrospect, and finally be reflected as conscious self-knowledge which is the beginning of philosophical wisdom. As a nation we are not old enough to develop, and yet too curious and receptive to despair of, a philosophy.

As we pass either from the smaller to the larger or from the Western to the Eastern institutions, we find in general a much better condition of things. The older Edwards, the influence of whose writings is still very great upon the religious philosophy of New England and the Middle States, did much to rationalise Calvinism and to inspire confidence in the verdicts of reason. In his great work on the freedom of the Will, he taught that the essence of right and wrong lies in the nature of acts and motives and not in their cause, that spontaneity and not self-determination is the characteristic of a free act. Subjectively, virtue is the love of being in general. Adam's sin was not imputed to his descendants, but its effects were naturally transmitted as the withdrawal of higher spiritual influences. The new birth is not the advent of a new but the new activity of an old principle. The disciples of Edwards—Dr. Dwight, C. G. Finney, E. A. Parks, Horace Bushnell, Moses Stuart, and many others—have modified and widely extended his opinions.

Deserving of special mention are Mark Hopkins and L. L. Hickok. The latter, lately professor of philosophy in Union College, N.Y., has written text-books entitled *Rational Psychology, Moral Science, Empirical Psychology, Rational Cosmology, Creator and Creation*, &c., some of which are made the basis of instruction in Amherst College. On the ground of a modified Kantianism he attempts to reconcile an original interpretation of post-Kantian idealism with orthodox theology. His subtle mysticism has found many admirers. Mark Hopkins, long president of Williams College, though laying claim to no great scholarship even in his own department, brings with singular independence and individuality the skill of nearly half a century of paedagogic experience, and a most impressive force and sweetness of character, to enforce in a direct Socratic way the lesson that philanthropy is the substance of both religion and morals. His influence, not only on many generations of students, but wherever his lectures and text-books have been read, has been considerable.

At Yale College, philosophy is taught mainly by President Porter on the basis of his compendious text-book above named, but with auxiliary lectures, books of reference, &c. Although a clergyman of the congregationalist denomination, he has devoted a life of study largely to philosophy, and is a vigorous expositor of the Scotch-Kantian speculation as opposed to Darwinism and materialism.[1]

The influence of W. E. Canning, Theodore Parker, R. W. Emerson, and the considerable body of Unitarian writers, has been most wholesome in stimulating and liberalising speculative thought, especially at Harvard University where the most extended course of philosophic study is now offered. The amount of work *required* of all students is much less than at Yale, and instead of the topical method, by which sensation, representation, reason, &c., are followed separately through ancient and modern systems, the historical method is adopted. Jevons's *Logic* and Locke's *Essay*, each two hours per week, are prescribed for all students during the junior year. But in addition to this, five optional courses are offered in the last annual catalogue as follows: (1) Cartesianism, Descartes, Malebranche, Berkeley, Hume; (2) Spinoza, Leibnitz and Kant, Bouillier's *Histoire de la philosophie Cartésienne*, Kant's *Critique of Pure Reason*, Schwegler's *History of Modern Philosophy*, Lectures on French and German Philosophy; (3) German Philosophy of the present day—Schopenhauer's *Die Welt als Wille und Vorstellung*, Hartmann's *Philosophie des Unbewussten*; (4) Psychology—Taine *On Intelligence*, Recitations and Lectures; (5) Ethics—Grote's *Treatise on the Moral Ideals*, Cicero's *De Officiis*, Lectures. Each of these courses occupies three hours per week through the year, and all, especially the first two, are largely attended. The fourth course has been organised only two years, and is conducted by the assistant-professor of physiology. It was admitted not without some opposition into the department of philosophy, and is up to the present time the only course in the country where students can be made familiar with the methods and results of recent German researches in physiological psychology: the philosophical stand-point of Dr. James is essentially that of the modified new-Kantianism of Renouvier. Professor Bowen, who has been for many years at the head of the philosophical department, has recently published his lectures on the History of Modern Philosophy in the form of a text-book, a review of which has already appeared in MIND. He is a very lucid expositor, especially of Kant and Schopenhauer, and a vigorous antagonist of materialism and infidelity: his philosophical stand-point is essentially theistic and his method eclectic. Assistant-professor Palmer, who has for some years taught the first course, and more recently Kant's *Critique*, is purely objective, impersonal and historical in his expositions, which are remarkably acute and thorough. Professor C. C. Everett, of the theological department, lectures on the history of German philosophy from a modified Hegelian stand-point. How independent and original his interpretations have been may best be seen in his *Science of Thought*. John Fiske, formerly lecturer on philosophy in the university, and widely known by his *Outlines of Cosmic Philosophy* as the American expositor of Herbert Spencer, was the first to elaborate the doctrine that the development of sympathy and philanthropy was due to the prolongation of the period of human infancy. Following Mr. Spencer's sociological researches, he has more recently turned his attention to historical subjects. Chauncy Wright, whose philosophical papers have lately been edited by Professor Norton, was a man of great philosophical acumen, whose untimely death was most unfortunate for philosophy in Cambridge. It is impossible, even after a careful study of his writings, either to epitomise his views or to account for his influence upon those who came in contact with him. The latter was no doubt largely due to the uniform sweetness of his disposition, to his unusual powers of ready conversational exposition and illustration, and to the extent and variety of his mental acquisitions. His most considerable essay, on the "Origin of Self-Consciousness," unfolds the view that when a subjective sequence of mental terms or states can be held along with, though distinct from, an objective sequence, involving thus at least four terms in all, self-consciousness may be first said to exist. How this comes to pass and how thence the higher faculties are developed, is unfolded with most characteristic analytic subtlety. With an almost Coleridgean power of abstract ratiocination, favoured by his mathematical profession, he combined the tastes of a student of nature. His correspondence with Mr. Darwin, more lately printed among his letters, shows how carefully he had pondered the details of the theory of natural selection, the expression of emotion, &c. It can scarcely be doubted, however, by those who attempt to shell out the kernel of his speculations, that vagueness and even ambiguity most seriously impair the value of his work. Finally, no account of philosophy in Cambridge would be complete which failed to mention the name of J. E. Cabot, a member of the visiting board of the University in philosophy, and widely known for the extent of his learning and the breadth of his sympathies and opinions.

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[1] Dr. Porter has also published a brief historical sketch of philosophy in the United States, with an exhaustive bibliography, in Ueberweg's *History of Philosophy* (translated by Professor G. S. Morris of Michigan University) Vol. II., pp. 422, ff.

President Le Conte of the University of California, most favourably known for his acute contributions to the phenomena and theory of binocular vision, has for some years instructed his classes from the text-books of Bain, Spencer, Carpenter, &c. It is also hoped that the new University of Baltimore will soon establish a chair of physiological psychology and another of the history of philosophy. A special professorship of the former department is more or less definitely contemplated by several of the larger institutions.

Outside of schools and colleges, philosophical interests have taken on the whole a wide range. Trendelenburg, Schleiermacher, Krause, Schelling, Fichte, Herbart and Lotze have all found more or less careful students and even disciples among men of partial leisure in the various professions, who have spent the last year or two of student-life in Germany. Above all these, however, stand first the influence of Hegel, which since 1867 has been represented by the quarterly *Journal of Speculative Philosophy*, edited by Wm. T. Harris of St. Louis, and secondly that of Herbert Spencer and other English evolutionists, which has been greatly extended by the *Popular Science Monthly*, edited by Dr. E. L. Youmans of New York. Mr. Harris is a pronounced Hegelian, adopting in the main the intrepretation of Rosenkranz. As superintendent of the public schools of his city, he has had but little time for original contributions to his *Journal*, but all English students who wish to understand Hegel's *Logic*, particularly the third part, should not fail to read Mr. Harris's compendious articles as part of the necessary propaedeutic. He has gathered about him a circle of young men who have been led by his influence to interest themselves in German speculations, and whose contributions are found in nearly every number of the *Journal*. Unfortunately it has never quite paid its expenses, and the editor himself has year after year made up the deficit from his own purse. Yet the quality of the original articles has steadily improved, and the influence of the *Journal* seems on the whole to be increasing in the country. From the first a large portion of each number has been given to translations from Greek, French, and especially German philosophers. Important chapters of Fichte, Kant, Trendelenburg, Rosenkranz, and especially of Hegel's *Aesthetics*, *Phenomenology*, *Logic*, &c., have appeared here for the first time in English. Many convenient epitomes of more extended works by the above and other writers have also been published. The editor has from the first carefully studied the bearings of philosophical speculation upon methods of education, and the high character of the schools under his care and the wide interest felt among teachers in his annual reports, bear witness to the discretion with which abstract principles have been utilised as practical suggestions. German paedagogical methods have also been introduced to the notice of teachers in the pages of the *Journal*. Among its earlier more prominent contributors Mr. Kroeger has lately turned his attention to translating Fichte, Mr. Schneider to Shakespearian criticism, and Mr. Davidson to Aristotle, whose *Metaphysica* he is now translating with new interpretations in Athens.

The appearance of such a journal in America, and above all in a great centre of western trade, supported by enthusiastic self-trained thinkers who had the hardihood to attempt to translate into Anglo-Saxon the ponderous nomenclature of the absolute idealism of the *Wissenschaftslehre* and the Hegelian

Logic, has been often spoken of as surprising and even anomalous. The explanation, however, may not be far to seek. There is perhaps no spot in America where during the last quarter of a century illustrations of the powers of the human mind over nature have been so numerous and so impressive as in St. Louis. In a city so young and so large, the geographical and commercial centre between west, east, and south, the inference that in a more than poetic sense thought is creative and man is the maker of the world, is not merely congenial, but to a certain degree spontaneous and irresistible. Again there is such a pleasing sense of liberty in the perpetual recurrence of dialectic alternatives, and yet of security, inspired by the regularity with which the beats and clicks of the triadic engine are heard, and above all there is such a largeness and scope in the formula of Hegel, as if the Universe itself might be 'done' once for all by reading a few thousand pages, that it is no wonder his sun should rise upon the new as it sets in the old world. Where every thing is an open question it is pleasing to feel that "all progress is advancement in the consciousness of freedom". But this is not all. No one can spend a week among the philosophical coteries of St. Louis without feeling—still more perhaps than by reading the *Journal*—that these causes, aided by the influences of reaction from a severely practical and business life, have awakened the faculty of philosophy to a most hopeful and inquiring receptivity. There seems scarcely a doubt that, should Mr. Harris decide to open his *Journal* to psychological as well as to metaphysical discussions, and in preference to the aesthetical selections which have been so often weary and unprofitable, it would soon become not only self-supporting but remunerative.

One of the most acute of the so-called "right wing" Hegelians is Professor Howison of the Massachusetts Technological School in Boston. His course of lectures on the history of philosophy is extended and thorough, though attended largely by ladies. He has lately delivered a course of public lectures in the Lowell Institute on the Logic of Grammar mainly in the spirit of Aristotle and Trendelenburg.

In Germany it is said that Hegelianism has been an excellent *Vorfrucht* to prepare the philosophical soil for the theories of evolution. It limbers and exercises without fevering the mind, making a safe and easy transition from the orthodox to the scientific stand-point. Even its adversaries often admit that as a mental discipline at a certain stage of philosophical culture it is unsurpassed. However this may be, it is certain that the theories of Herbert Spencer, G. H. Lewes and other English evolutionists, which have exerted such an immense influence in the United States during the last decade, are not indebted to Hegelianism, but are represented almost entirely by scientific men not especially interested in the history of speculation. If the worst side of the American college is the philosophical, its best is the scientific department. The value and thoroughness of the work done here is probably too little appreciated abroad. While in some of the smaller colleges it is poor enough, in many others the professors have had a thorough European training and lack only leisure and library and laboratory opportunities for valuable and original work. With comparatively few exceptions, all the most competent teachers of natural or physical science either tacitly accept or openly advocate the fundamental principles of evolution. Even the most orthodox institutions are often no exceptions to this rule. One of the largest of these long and vainly sought for a professor of zoology who would consent to pledge himself beforehand to say nothing in favour of Darwinism. In eight or nine out of more than thirty of those institutions which the writer has visited, instructors in this department are allowed to teach the principles of Huxley and Haeckel, if they wish, unmolested. It must be said, however, that very often the adoption of the formulae of the development-theory is so premature as seriously to interfere with the patient mastery of scientific details, or, through the students' impatience with other methods, to lower the standard of work and attainment in other departments. In a country of such remarkably rapid development as our own, where the ploughboy is never allowed to forget that he may become a millionaire or even President if he wills it earnestly enough, the catchwords of evolution often excite an enthusiasm which is inversely as the power to comprehend its scope and importance. Many of the more semi-popular aspects of Herbert Spencer's philosophy have been admirably presented by Mr. John Fiske in courses of lectures in Harvard University, in Boston, New York, and in several of the Western cities. In the periodical, especially the religious, press, criticisms almost without number have been published. Professor Bowne of the new Boston University has elaborated his strictures of Herbert Spencer into a small volume which is one of the most subtle and forcible criticisms of the *First Principles* and the *Psychology* that have ever proceeded from an essentially evangelical standpoint.

About a year ago Mr. C. S. Peirce, assistant in the United States Coast Survey, began in the *Popular Science Monthly* a series of papers entitled "Illustrations of the Logic of Science," which is still progressing. The author is a distinguished mathematician, and this discussion, in which he long ago interested himself, promises to be one of the most important of American contributions to philosophy. Thought, he premises, is excited by the irritation of doubt, and ceases when belief is attained. Feigned hesitancy, whether for amusement or otherwise, stimulates mental action. The production of belief is thus the sole function of thought. It involves moreover the establishment in our nature of a rule of action or a habit. Beliefs are distinguished by the different modes of action to which they give rise. There is no distinction of meaning so fine as to consist in anything but a possible difference of practice. Our idea of anything is our idea of its sensible effects. To attain the highest degree of clearness we must consider what effects that may have practical bearings we conceive the object of our concern to have. Our conception of these effects is then the whole of our conception of the object. In calling a thing hard, *e.g.*, we say that it will not be scratched by many substances. We may indeed say that all hard bodies remain soft till they are touched. There is no falsity in such a *mode of speech.* The question of what would occur under circumstances which do not actually arise is not a question of facts, but only of the most perspicuous arrangement of them. (*Cf.* Helmholtz, *Physiol. Optik*, ss. 431-443.) If we know the *effects* of force, we are acquainted with every fact which is implied in saying that force exists, and there is nothing more to know. All the effects of force may be correctly formulated under the rule for compounding accelerations. Processes of investigation, if pushed far enough, will give one certain solution for every question to which they can be applied. The general problem of Probabilities, which is simply the problem of Logic, is from a given state of facts to determine the universal probability of a possible fact. The probability of a mode of argument is the proportion of cases in which it carries truth with it. But it springs from an inference which is repeated indefinitely. The number of probable inferences which a man draws in his whole life is a finite one, and he cannot be certain that the mean result will accord with probabilities at all. A gambler, an insurance company, a civilisation, although the value of their expectations at any given moment, according to the doctrine of chance, is large, are yet sure to break down at some time. The fact of death makes the number of our risks and impressions finite, and therefore their mean result uncertain. Yet the idea of probability assumes that this number is indefinitely great. Hence Mr. Peirce infers that logicality inexorably requires that our interests should not be limited. They must not stop at our fate but must embrace the community. Logic is thus rooted in the social principle. He who would not sacrifice his own soul to save the world is illogical in all his impressions collectively. Interest in an indefinite community, recognition of the possibility of this interest being made supreme, and hope in the unlimited continuance of intellectual activity are the indispensable requirements of Logic. After laying down three fundamental rules for the calculation of chances, which are all he is willing to recognise, and deducing from his definition of the probability of a consequence rules for the addition and multiplication of probabilities, he comes to the discussion of what Mr. Venn distinguishes as the conceptualistic in opposition to the materialistic view. The former, as expounded by De Morgan, regards probability as the degree of belief which ought to attach to a proposition; while, according to the latter, it is the proportion of times in which an occurrence of one kind is *in fact* accompanied by an occurrence of another kind. He concludes that the conceptualistic view though answering well enough in some cases is quite inadequate. The problem proposed by the conceptualists he understands to be this:—Given a synthetic conclusion; required to know out of all possible states of things how many will accord to any assigned extent with this conclusion. This he regards as only an absurd attempt to reduce synthetic to analytic reason, and believes that no definite solution is possible. As all knowledge comes from synthetic inference which can by no means be reduced to deduction, it is inferred that all human certainty consists merely in our knowing that the processes by which our knowledge has been derived are such as must generally lead to true conclusions. In discussing the order of nature, Mr. Peirce concludes that although this universe ought to be presumed too vast to have any character, yet the spirit of science is hostile to any religion except one like that of M. Vacherot, who worships a supreme and perfect ideal whose non-existence he finds as essential to the conception of it as Descartes found its existence to be. Any plurality of objects have some character in common which is peculiar to them and not shared by anything else. A chance-world is simply the actual world as it would look to a polyp at the vanishing point of intelligence. If we do not limit ourselves to such characters as have *for us* importance, interest or obviousness, then any pair of objects resemble one another in just as many particulars as any other pair. The division of synthetic inferences into induction and hypothesis, the discussion of Mill's doctrine of the uniformity of nature, and of the assumption of De Morgan's Formal Logic, are very suggestive and interesting; but we have no space for further quotations and must refer the reader to the original papers.

Perhaps the most general characteristic of American intellectual life is its heterogeneity. Not only has each religious sect or denomination its own revered and authoritative founders or reformers, its own newspapers and literature, and often its own set of duties and associations, beyond the limit of which the thoughts and interests of its more uneducated members rarely pass, but also many semi-philosophical sects have a more or less numerous representation. Swedenborgianism has many churches and expositors, the best of the latter being Mr. Parsons and Mr. Henry James, father of the well known novelist. The sort of life produced under the influence of this system is broadly sympathetic, charitable, intelligent, and in every way admirable. Its disciples in America have succeeded in making it in the best sense of the word a practical system. Again, the later speculations of Comte in the *Politique Positive* have found a number of admirers in New York and elsewhere. The voluminous works of S. P. Andrews best illustrate the incoherency and assumption of this rather insignificant coterie. What might be called its right wing contents itself with the discussion of revolutionary, social and economic theories, particularly of the relation of labour and capital, while its left shades off by insensible gradations into all the vagaries of spiritualism. The general sect of spiritualists is very large and has produced a vast and dismal body of literature. Most physiologists and psychologists are now convinced that here is one of the most interesting fields for scientific observation, such as will never be made by spiritualists themselves, but no serious study of the phenomena has as yet been attempted.

On the whole, in view of the intellectual conditions of the United States, it is not to be wondered at that minds of a philosophical cast are often found to be eclectic and perhaps hypercritical. Probably in no other country is a man of high culture tempted by so many and varied considerations to criticise or instruct rather than to add to the sum of the the world's intellectual possessions by doing original work.

The influence of German modes of thought in America is very great and is probably increasing: Du Bois Reymond observed in a public address some years ago that no two countries could learn so much from each other. Scores of American students may be found in nearly all the larger German universities. Most of even the smaller colleges have one or two professors who have spent from one to three or four years in study in that country, whose very language is a philosophical discipline. The market for German books in the United States is in several departments of learning larger than in Germany itself, though this is partly, of course, to be accounted for by the number of German residents. The Hegelianism of St. Louis was not only first imported but has always been to some extent supported by native Germans.

It has been urged that a nation, like ours, which inherits a ready-made language and a rich literature which it has not itself developed, is apt to be superficial in thought and shallow in sentiment. But it is surely forgotten that this is a heritage to which every generation is born. Besides, language knows no political or geographical distinction, and even the best literature is no longer national. And may we not, at least, modestly claim that enough philosophical thinking has been done to show that we are not behind in power of mental assimilation?

Protestantism in America has its well-developed grammar of dissent, and has been in the past an invaluable philosophical discipline. The American, perhaps, even more than the English, Sunday might almost be called a philosophical institution. A day of rest, of family life and introspection, it not only gives seriousness and poise to character and brings the saving fore-, after-, and over-thought into the midst of a hurrying objective and material life, to which its wider sympathies and interests and new activities are a wholesome alternative, but it teaches self-control, self-knowledge, self-respect, as the highest results of every intellectual motive and aspiration. In its most developed forms, especially among the Unitarians, Protestanism has more or less completely rationalised not only the dogmas of theology but their scriptural data, and now inculcates mainly the practical lessons of personal morality and the duty of discriminative intellectual, political and æsthetical activity.

Finally we shall venture to call patriotism a philosophical sentiment in America. It is very deeply rooted and persistent even in those who take the most gloomy view of the present aspect of our political life, who insist that the Constitution needs careful and radical revision, and who are not disposed to overrate the magnitude of events in our national history thus far. It is philanthropic, full of faith in human nature and in the future. And if, according to a leading canon of the new psychology, the active part of our nature is the essential element in cognition and all possible truth is practical, then may we not rationally hope that even those materialisms of faith and of business which we now deplore, are yet laying the foundations for a maturity of philosophical insight deep enough at some time to intellectualise and thus harmonise all the diverse strands in our national life?

G. Stanley Hall.

VII.—NOTES AND DISCUSSIONS.

THE ESTABLISHMENT OF ETHICAL FIRST PRINCIPLES.

I cannot but think that the readers of ethical treatises—the remark applies to Utilitarian and Intuitional moralists alike—must often be perplexed by the manner in which their authors deal with the propositions which they present as first principles. They begin by declaring that first principles are, as such, incapable of proof, and then immediately proceed to make what at least an untutored mind can hardly distinguish from an attempt to prove them. The apparent inconsistency is indeed easy to explain; for all, or almost all, *soi-disant* ethical first principles are denied to be such by at least respectable minorities; hence we naturally expect our moralist not merely to propound his first principles, but also somehow to provide us with rational inducements for accepting them. Still, the dilemma in which he is placed is a somewhat serious one, and seems to me to deserve more systematic examination than it has yet received. On the one hand, it seems undeniable that first principles cannot stand in need of what is strictly to be called proof: they would obviously cease to be first principles if they were exhibited as dependent for their certainty on the acceptance by the mind of certain other truths. Yet, on the other hand, when we are dealing with any subject where there is a conflict of opinion as to first principles, we can hardly refuse to give reasons for taking our side in the conflict: as rational beings conversing with other rationals it seems absurd that we should not be able to explain to each other why we accept one first principle rather than another. And how can these reasons be valid if they do not prove the first principle which they (to use Mill's phrase) "determine the mind" to accept?

To find a way out of this difficulty we require, I think, to take Aristotle's distinction between logical or natural priority in cognition and priority in the knowledge of any particular mind. We are thus enabled to see that a proposition may be self-evident, *i.e.*, may be properly cognisable without being viewed in connexion with any other propositions; though in order that its truth may be apparent to some particular mind, there is still required some rational process connecting it with propositions previously accepted by that mind.

For instance, I may begin by regarding some limited and qualified statement as self-evident, without seeing the truth of the simpler and wider proposition of which the former affirms a part; and yet, when I have been led to accept the latter, I may reasonably regard this as the real first principle, and not the former, of which the limitations and qualifications may then appear accidental and arbitrary. Thus, to take an illustration from the subject of Ethics, with which I am here primarily concerned, I may begin by laying down as a principle that "all pain of human or rational beings is to be avoided"; and then afterwards may be led to enunciate the wider rule that "all pain is to be avoided"; it being made evident to me that the difference of rationality between two species of sentient beings is no ground for establishing a fundamental ethical distinction between their respective pains. In this case I shall ultimately regard the wider rule as the principle, and the narrower as a deduction from it; in spite of my having been led by a process of reasoning from the latter to the former. Or again (as I have elsewhere argued)[1] I may start with the egoistic maxim that "it is reasonable for me to take my own greatest happiness as the ultimate end of my conduct"; and then may yield to the argument that the happiness of any other individual, equally capable and deserving of happiness, must be no less worth aiming at than my own; and thus may come to accept the utilitarian maxim that "happiness generally is to be sought" as the real first principle; considering the egoistic maxim to be only true in so far as it is a partial and subordinate expression of this latter.

This then is one species of the rational process that we are considering; by which we are logically led to a conclusion which yet when reached we regard as a first principle. We start with a proposition which appears self-evident; we reflect on it and analyse it into a more general proposition with a limitation; concentrating our attention on the limitation, we see that it is arbitrary and without foundation in reason; we deny its validity and substitute for our original principle the wider statement of which that affirmed a part.

There is another quite different process by which a similar result may possibly be reached. We may be able to establish some general criteria for distinguishing true first principles (whether ethical or non-ethical) from false ones; and may then construct a strictly logical deduction by which, applying their general criteria to the special case of ethics, we establish the true first principles of this latter subject. How far such a methodological deduction is actually in our power, I will presently consider. At any rate, I should maintain that there is no third way of establishing ethical principles. The premisses of our reasoning, when strictly stated, must, if not methodological, be purely ethical: that is, they must contain, implicitly or explicitly, the elementary notion signified by the term "ought"; otherwise, there is no rational transition possible to a proposition that does affirm "what ought to be". It may be true that in the development of human minds judgments of the former kind are found among the antecedents of the latter; *e.g.*, a man may be actually led by contemplating purely physical facts to enunciate a moral law; but I know no way of exhibiting this process as logically cogent, and consequently valid for all minds.

This point will, I think, be easily admitted when it is considered in this abstract way; but I find it frequently ignored in current ethical arguments. *E.g.*, many writers seem to hold with Mill[2] that the psychological generalisation that all men desire pleasure can be used to establish the ethical proposition that pleasure is what we ought to aim at. In Mill's argument the paralogism is partly concealed by the ambiguity of the word "desirable"; for if by "desirable" we merely mean what *can* be desired, the inference that pleasure is desirable because it is actually desired is obviously both irresistible and insignificant. But if we are seeking (as Mill is) for an ethical principle, from which practical rules may be deduced and which therefore must contain implicitly the notion "ought," I cannot see how we are logically to reach such a principle through the most extensive observation of what men actually desire. And the same may be said of all attempts to construct an ethical system on a basis of physical fact; or on the basis of any other kind of psychical facts except ethical beliefs. We may affirm *à priori* that there must be a gap in all such reasonings—where the notion "ought" is introduced—which does not admit of being logically bridged over.

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[1] *Cf. Methods of Ethics*, III. c. 13 and IV. c. 2.

[2] *Cf. Utilitarianism*, c. 4.

Let us now examine the question above-reserved; *viz.*, whether it is possible to state any general characteristics by which true first principles may be distinguished from false ones; besides, that is, the characteristic of being self-evident to the mind that contemplates them. Such criteria would certainly be useful, if they can be found: since the history of thought makes it only too clear that the human mind, philosophic and unphilosophic, is liable to affirm as self-evidently true what is afterwards agreed to be false. No doubt the Cartesian condition of "clearly and distinctly conceiving" whatever we affirm to be self-evident affords a partial protection against such errors; by carefully conforming to it we may often avoid mistaking mere habitual assumptions, or beliefs inadvertently accepted on authority, for intuitive truths. But though this precaution is a valuable one, it is certainly not adequate: as an inspection of the first principles of Cartesian physics will sufficiently show. It is therefore important to examine what Reid and others have to offer in the way of further criteria. Of these there seem to be chiefly two which have obtained a wide currency and on which considerable stress has been laid by thinkers of more than one school; *viz.*, (1) Universality (or approximate universality) of acceptance,—"consent of learned and unlearned," and (2) Originality, as inferred from the early date at which certain beliefs make their appearance in any particular mind. I propose to consider each of these separately.

First, however, I would observe that it makes a fundamental difference whether these or any similar criteria are used as supplementary to the characteristic of apparent self-evidence, or as substitutes for it. It seems to me a cardinal defect of Reid's philosophy that he leaves this difference in the back-ground, and does not always make it clear from which of the two points of view he is arguing. Regarded in the former light, I should quite admit the importance of the criterion of "consent," the logical value to any individual mind of the agreement with other minds in any given intuition. It may be thought, perhaps, that so long as any proposition presents itself as self-evident, we can feel no need of anything more, though we may afterwards come to regard it as false: since self-evidence, *ex vi termini*, leaves no room for any doubt that a supplementary criterion could remove. But this view does not sufficiently allow for the complexity of our intellectual processes. If we have once learnt, either from personal experience or from the history of human thought, that we are liable to be mistaken in the affirmation of apparently self-evident propositions, we may surely retain this general conviction of our fallibility along with the special impression of the self-evidence of any proposition which we may be contemplating; and thus, however strong this latter impression may be, we shall still admit our need of some further protection against the possible failure of our faculty of intuition. Such a further guarantee we may reasonably find in "general consent"; for though the protection thus given is not perfect—since there are historical examples of untrue propositions generally accepted as self-evident—it at least excludes all such error as arises from the special weaknesses and biases of individual minds, or of particular sections of the human race. A proposition which presents itself to my mind as self-evident, and is in harmony with all the rest of my intuitions relating to the same subject, and is also ascertained to be accepted by all other minds that have been led to contemplate it, may after all turn out to be false: but it seems to have as high a degree of certainty as I can hope to attain under the existing conditions of human thought.

The case is very different when the argument from "consent" is used not to confirm but to override my individual judgment as to the self-evidence of any proposition. Even so it may afford a sufficient ground for a practical decision: certainly if I found myself alone *contra mundum*, I should think it more probable that I was wrong than that the world was, and such a balance of probability is enough to act on: but I could not treat the proposition in question as sufficiently known for purposes of scientific reasoning. For the argument establishing it would equally establish the defective condition of the individual intellect that failed to see its truth: and would therefore afford a general probability of error in any exercise of that intellect on the subject to which the proposition related.

Let us pass to consider the second of the above-mentioned criteria, Originality. It seems to me that the stress laid on this by Reid and other writers is chiefly due to a psychological assumption now almost exploded; *viz.*, that the human mind exists at birth in a condition which, though imperfect, in so far as undeveloped, is at least free from positive faults: in which, therefore, the exercise of its cognitive faculties, so far as it is capable of exercising them, must result in truth. It is hardly necessary at the present day to point out how entirely this assumption lacks scientific foundation: since not only is this original uncorrupted state of the human intellect nowhere given in experience, but we do not find any approximation to it as we trace back the history of any individual man, or of the human race generally, to its sources. Indeed there probably remain but few thinkers who conceive themselves in a position to urge the ascertained originality of any belief as positive evidence of its truth. There seem, however, to be still some who would apply the criterion negatively;

holding that if we can explain the derivation of an apparently self-evident belief, we thereby show its apparent self-evidence to be illusory. This view I propose briefly to consider.

The supposed explanation must consist in stating either (1) the physical or (2) the psychical conditions of the mental phenomenon which is said to be derived. Now on the physiological question I speak with all diffidence: but I believe that physiologists have no such knowledge of the bodily conditions under which true and false beliefs respectively are produced, as could possibly justify us in invalidating an apparently self-evident proposition on physiological grounds; except in the case of mental derangement revealed by physical symptoms, or of beliefs that are normally received through the operation of the organs of sense. A clairvoyant may have reason to distrust his visions because they come with his eyes closed; but I am aware of no similar grounds for discrediting ethical intuitions.

It will seem then that the explanation that is to invalidate the self-evidence of an apparent intuition must be psychological. Now it is universally held, by English psychologists at least, that we know Mind only as a series of transient phenomena—except so far as we are allowed to know the permanence, identity, and free causality of the subject of these phenomena; a point which does not now concern us. At any rate the psychological "derivation" of any belief or other mental phenomenon can be at most an account of the transient psychical facts—whether beliefs or merely feelings—which experience shows to be invariable antecedents of the phenomenon explained. We have no ground for supposing these antecedents really to persist in their consequent under a changed form, when they have apparently passed away. It is necessary to lay stress on this, because several writers of the Associational school assume the right of transferring chemical conceptions to psychical change; and regard mental phenomena as "compounded" of their antecedents just as a piece of matter is conceived to be composed of its chemical elements. I have never seen any justification for this procedure. Certainly the analogy of material chemistry fails to justify it. When the coexistence of the two antecedents oxygen and hydrogen is followed by the appearance of the heterogeneous matter called water, we have two distinct reasons for conceiving the oxygen and hydrogen to have a latent existence in the water; first that the weight of the water exactly corresponds to the weight of the oxygen and the hydrogen, and secondly that we can reverse the process of change and exhibit the water as the immediate antecedent of the oxygen and hydrogen. But neither of these reasons exist—nor any other that I am aware of—for attributing more compositeness to any mental phenomenon than we can discern in it by direct introspective analysis.

If then it be admitted that the so-called "explanation" of an apparent intuition can only consist in a statement of its antecedents, not its elements, we have to ask in what way such a statement can affect the question of its truth or falsehood. Some writers really seem to think that the mere fact of a belief having been caused is a ground for distrusting it, unless we can show that its causes have been such as to make it true. But this doctrine lands us at once in universal scepticism; since the premisses of any such demonstration must be beliefs, which having been caused will themselves require to be proved true. Unless indeed it is held that the ultimate premisses of all reasoning are uncaused!—a paradox which I have no ground for attributing to the writers in question. Otherwise if all beliefs are equally in the position of having had invariable antecedents, it is obvious that this characteristic alone cannot serve to invalidate any of them.

If therefore an apparently self-evident proposition is to be discredited on account of its derivation, it must be not merely because, as a psychical phenomenon, it is the consequent of certain antecedents, but because it can be shown from experience that these particular antecedents are more likely to produce a false belief than a true one. I am far from denying that such a demonstration is possible in the case of some propositions that have been put forward as self-evident ethical principles: but I do not remember to have ever seen it systematically attempted.

HENRY SIDGWICK.

MR. BALFOUR ON TRANSCENDENTALISM.

I should like to say a few words about Mr. Balfour's paper on "Transcendentalism," which appeared in MIND XII. Mr. Balfour is a vigorous critic, but I do not think he is sufficiently familiar with Kant, or with any mode of thought which can, in Kant's sense, be called 'transcendental,' to make his criticism in this case very effective. I shall not therefore follow him through all the questions he discusses, but confine myself to a few leading points.

(1) Mr. Balfour's main stumbling-block is Kant's expression, '*Musskönnen*' (must be capable), and, like Schopenhauer, he thinks that the second word takes away all the force of the first. If it cannot be said that the object of knowledge *must* be thought as object to a conscious subject, but only that it must be *capable of* being so thought, this, he thinks, destroys the whole transcendental argument. "The rules which thought was supposed to impress on nature, according to which nature must be, because without them she would be nothing to us as thinking beings, these rules turn out after all to be of only subjective validity. They are the casual necessities of our reflective moments, necessities which would have been unmeaning to us in our childhood, of which the mass of mankind are never conscious, and from which we are absolved during a large portion of our lives" (MIND, XII., p. 489). Will Mr. Balfour carry out this argument to its legitimate consequences? Logicians tell us that a conclusive argument *must be capable* of being stated in logical form, and shown to be in accordance with logical laws. Will Mr. Balfour then maintain *either* that every one who reasons correctly knows these laws

as the scientific logician knows them, *or* that these laws are "of subjective validity," "the casual necessities of our reflective moments"? Again, not only Kant, but Hamilton, Mill, Spencer, and indeed almost every modern writer on the theory of knowledge, maintains that we know things only in their relation to each other. Yet the very emphasis with which they think it necessary to insist on this fact, if there were nothing else, would be sufficient to show that it is a fact hidden from the ordinary consciousness of men. On the contrary, to that consciousness things seem to be known in themselves and apart from all relations, till such 'transcendental' writers show that it is *not* so. Now will Mr. Balfour say that the doctrine of the relativity of the objects of knowledge is merely "of subjective validity"?

(2) But Mr. Balfour tries to fortify his argument by saying that Idealists, of all men in the world, as they hold that the *esse* of things is their *intelligi*, *ought* to hold that there is nothing in the thought of the individual of which he is not conscious (p. 487). Now, Idealism is based on the truth that the only intelligible meaning of objectivity or existence, is objectivity *for a thinking subject*, and that of an object external to thought we can say nothing. But this no more implies that the individual subject must have brought to consciousness all that is involved in his knowledge of objects, than it implies that every individual subject must be omniscient. The truth is that Mr. Balfour has never realised the difference between the so-called Idealism of Berkeley and the Idealism of Kant. This is manifest from the whole course of his paper, and particularly from some of his criticisms on Kant's 'Refutation of Idealism'. Thus (p. 498) Mr. Balfour says: "The real question is this—Does being in space and outside the body imply that the extended and external object is outside of mind, and other than one of the series of conscious states?" And then he proceeds to accuse Kant of a confusion between the idea of externality *to* consciousness, and the idea of externality in the sense of existence *in* space (which, it may be remarked in passing, Kant has expressly and clearly distinguished, *Kritik*, ed. Rosenk, p. 299), because he only attempts to show that the explicit consciousness of the external object in the latter sense is prior to the explicit consciousness of the self as an object, and does *not* attempt to show that there is an existence of things in themselves independent of consciousness. But if Mr. Balfour had understood what Transcendentalism implies, he would have seen that its effect is to make the latter problem meaningless, and to substitute the former for it. (*Cf.* Mr. Green's article in *Contemporary Review*, Dec., 1877, p. 30.) No doubt there is an occasional uncertainty in Kant's language, especially in the first edition of the *Kritik*, for which I have elsewhere tried to account (*Phil. of Kant*, pp. 545, 621, &c.).

(3) Closely connected with this is another misunderstanding. Mr. Balfour begins his article by questioning Kant's own account of the 'Transcendental Logic' as having to do with the explanation of the fact of knowledge and not with the proof that knowledge is possible: or, as being, in Mr. Green's words, 'a theory of the process which without

theory we already perform'. This, Mr. Balfour thinks, is "misleading if not incorrect," for "Transcendentalism does attempt to establish a creed". Mr. Balfour, in short, finds it difficult to see how Kant's criticism should lead to any important theoretical conclusions, if it merely explains an assumed fact. But this difficulty arises from an insufficient appreciation of the result of such an enquiry into the nature of knowledge. The laws of Logic are reached simply by bringing to clear consciousness, or, in Kant's words, "bringing to conceptions," the principles involved in our actual thinking and reasoning, yet, when thus made conscious, they enable us to correct its errors. An illogical reasoning may be shown to be inconsistent with itself, because inconsistent with the principles upon which all reasoning depends. And if it be the fact, as Kant shows, that a self or 'combining consciousness' is implied in every determination of objects as such, it is to be expected that this fact, when brought to consciousness and reflected upon, will essentially modify our views as to the nature of these objects. It will have important bearings, *e.g.*, upon the possibility of a materialistic explanation of the world.

(4) As Mr. Balfour has thus misunderstood the nature of the transcendental method, it seems scarcely necessary to follow him in his criticisms of special points in Kant. Some of these criticisms indeed have been anticipated by those who have adopted Kant's method, but who have attempted to carry out the application of it more consistently than Kant himself; others imply the same misconceptions which have been already referred to. I may point out, however, that before any one can do justice to Kant's deductions of Substance and Causality, he must put himself at Kant's point of view; in other words, he must consider these deductions in the light of what has preceded them, especially of the 'Deduction of the Categories,' and the 'Schematism of the Conceptions of the Understanding'. The order of Kant's thought leads him to show: *first*, that objects as such cannot be given in sense; *secondly*, that, therefore, their determination as objects is by acts of mental synthesis, for which the forms or rules are supplied by thought itself, so that objectivity is the same thing as conformity to general rules of synthesis, or, as Kant expresses it, "objective validity and necessary universality are equivalent conceptions"; and *thirdly*, that these rules are the pure conceptions of the understanding, which, however, as applied to the matter of sense, are schematised in relation to time. Thus, *e.g.*, the purely logical relation of Reason and Consequent is schematised as Causality, *i.e.*, as Succession of one event after another, according to a universal rule. Now, it is quite useless to attempt to criticise the 'Analogies of Experience' without reference to these previous steps. For want of such reference, Mr. Balfour actually (p. 502) criticises Kant as having overlooked the very distinction upon which his argument rests—the distinction between mere succession and succession *according to a universal rule*.

I shall add one word of explanation. The aim of Kant in the *Kritik* is to prove that the mere particulars of sense cannot be made objects of knowledge except as determined by the universal (*cf. Phil. of Kant*, p. 267). In the 'Æsthetic' he shows that the present time and place (the 'here' and 'now') can be known as such only in relation to other times and places, and therefore as parts of one time and of one space. In the 'Analytic' he goes on in the same spirit to show that this determination of times and places in relation to each other and to the unity of time and of space, is itself impossible except through synthetic acts of thought whereby *phenomena* are determined in relation to each other and to the unity of experience. Of these acts, the principal are those which Kant calls the 'Analogies of Experience'. The defect of Kant's statement, as I have tried to show (*Phil. of Kant*, pp. 460-62) is that he separates the principles of Substance, Causality and Reciprocity too absolutely from each other, and hence seems to encourage the notion that the substance of things is a mere identity *underlying* difference, and that the transition from cause to effect is a mere movement from one phenomenon to another quite different from it. But for such errors we find the corrective in Kant himself, as, *e.g.*, where he tells us that the substance of phenomena lies in their permanent relations to each other (*Kritik*, pp. 231-2; *Metaph. Anfangsgründe, passim*). Kant indeed finds such permanent relations only in external experience, but on this point I have said enough elsewhere (*Phil. of Kant*, pp. 474 ff.).

(5) In conclusion I would observe that Mr. Balfour also is 'among the prophets' of Transcendentalism. For (p. 493) he admits that "change is unthinkable except for what Mr. Green calls a 'combining' and, therefore, *to some extent*, a persisting consciousness"; and he admits further that some "recognisable permanence through change" is necessary "to make change in time intelligible by contrast," though he says at the same time that "*the smallest recognisable permanence* is enough". It is *such* a little one! How can Mr. Balfour be allowed at once to use, and to repudiate, the transcendental method? And in reference to the above admissions, how will he deal with his own dilemma? Will he venture to affirm *either* that the persisting consciousness, of which he speaks, is only a "casual necessity of his reflective moments," *or*, on the other hand, that every one who is conscious of a permanent object must also have explicit consciousness of a persistent self?

EDWARD CAIRD.

(1) The whole value of Mr. Caird's first criticism depends on a confusion between performing an act and formulating the fact of its performance. I neither assert nor dispute the proposition that all knowledge is relative. But if it be true, I readily admit that it is not the less true because it is not a truth recognised by the mass of mankind. This admission, however, in no way weakens the force of my criticism on the transcendental method, for my contention is that, in many of the cases of so-called transcendental necessity, the relation under which we are told an object has to be thought before it can be anything to a thinking being, is one under which by the majority of mankind it is *not* thought. I do not say that the majority of mankind never formulate the fact of their so thinking it: I say that as a

separate souls, but through being so overmastered by the idea of the new (or revived) mechanical philosophy as to ignore the subjectivity of mind in his eagerness to express all experienced change in terms of motion. Locke's speculations, too, as to whether it might not have pleased the Deity to "superadd to matter a faculty of thinking," such as he had analysed it phenomenally, are obviously not less alien from the ancient metaphysical doctrine in Bacon's or any other version. In truth, after Bacon, it was not only the distinction of lower and higher souls that disappeared, but (by the growth partly of physical and partly of psychological science) the whole of that earlier way of thinking, which Bacon himself had been content to pass on.

Take next Prof. Fowler's remark, on occasion of Bacon's enumeration of mental faculties and naïve statement of their mutual relations, that "the sharp line of demarcation drawn here and in similar passages between the office of the so-called faculties was a common feature of the philosophy of the seventeenth and eighteenth centuries, and has only been replaced in comparatively recent times by a more just appreciation of the complexity of our various mental operations and of the number of elements which go to make up some even of those psychical acts which at first sight appear the simplest". Here it is not expressly stated that the English psychologists in these centuries were led by Bacon to divide the mind into 'faculties'; but if it had been remembered that it was precisely the English psychologists, beginning with Hobbes in the very generation after Bacon, who first took up the ground they have always since maintained against the 'faculty'-hypothesis, there could hardly have been a stronger proof given that Bacon exercised no influence at all upon the most characteristically English movement within modern mental philosophy —the continuous pursuit of psychological inquiry in the spirit of positive science. When, therefore, after particularising some others of Bacon's antiquated psychological notions, Prof. Fowler proceeds to say that "it is impossible not to see in these speculations, crude as some of them are, the beginnings of much of the later English psychology which became so famous in the hands of Locke, Hume, Reid, and others," one can only express surprise that he should be able to see it, at least as regards Locke and Hume.[1] As for the anticipations which Prof. Fowler thinks he finds in Bacon of later ethical ideas, it is perhaps sufficient to note his own admission that Bacon "nowhere expressly discusses the fundamental question of Morals, such as the grounds of Moral Obligation or the nature of the Moral Faculty,"—in short, attempts neither of the characteristic tasks that English thinkers have set before them in the one other department of mental philosophy, besides psychology, which they have specially cultivated.

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[1] The case is different with Reid, who was a strenuous upholder—in British psychology the reviver—of the 'faculty'-hypothesis; and Reid, we know, had an unbounded veneration for Bacon. It is not indeed necessary to suppose that he borrowed from Bacon in this particular. Still it is significant that his view of the mind's 'faculties' or 'powers,' however elaborately worked out, is almost as naïve and unscientific as Bacon's own.

Altogether, it can by no means be maintained that Bacon's greatness lay in his definite anticipation of coming achievements in science or philosophy. Science and philosophy, it is not too much to say, would be to all intents and purposes exactly where they are, though he had never been or never written; and there are other names in Bacon's century of which it would be rash so to speak. Does Bacon therefore fall out of the first rank of philosophical thinkers? That is a question of a rather vain description, which different people will answer differently; but the most strenuous of his depreciators will find it hard to name another thinker of the second class who can be compared with him for breadth of view. As a *preacher* in a time of intellectual uprising, he has never had an equal.

EDITOR.

Histoire de la Philosophie en Angleterre depuis Bacon jusqu' à Locke. Par CHARLES DE RÉMUSAT. Paris: Didier et Cie, 1875.

The author of this work was a profound student and a friendly critic of the philosophic literature of our island. His essay on Reid and his monograph on Bacon are widely known and appreciated. He himself was an independent member of the modern spiritualistic school of his country, and may be said to have occupied a place somewhere between Hamilton and Cousin. In relation therefore to the school which is usually considered peculiarly English, he is such a critic as the wise would wish to have—an opponent and likely to see our faults, but far enough away from our domestic quarrels to be unprejudiced, and sufficiently assured of his own ground to feel it safe to be generous. He rates the empirical philosophy less highly perhaps than its native adherents, but more highly than its native adversaries.

The salient feature of M. de Rémusat's *Philosophie en Angleterre* is the extent to which it treats of writers who, in a philosophical connexion, must be called second-rate. Whole chapters, or large portions of chapters, are given to such men as Hooker, Pemble, Culverwell, Chillingworth, Baxter, Whichcot, John Smith, More, Barrow, Taylor, Tillotson: so that, to judge from the table of contents, one might almost expect a history of English Latitudinarian Theology rather than of what is usually considered to be Philosophy. But this is in many ways advantageous: we are shown the philosophical side and the philosophical importance, such as it is, of men whose claims in this respect are generally overlooked, and we are forcibly reminded of a fact of the utmost moment in the history of philosophy, but which historians and critics are shy of recognising—the close relationship between modern philosophy and Christian theology. There are also accounts of Lord Herbert of Cherbury, Cudworth, and others, all interesting figures and well worth remembering, but of whom a busy student of speculative thought, without leisure for the luxuries of his calling, may be excused for wishing to learn something without reading through their works. As for Sir Thomas Browne, he is out of place amongst writers whose mode of thinking may be called for the most part approximately coherent. Besides there is no way of making his acquaintance but at first hand, and no attempt at an analysis or redaction of his sentiments can be regarded in a serious light.

On the other hand the greater lights of the period are imperfectly reflected in this book, though the existence of the separate work on Bacon explains why he receives only a few pages in this one. The author's judgment of him remains the same, and is summed up in the following passage, of which the first sentence so resembles one which I have written elsewhere, that I would certainly have quoted had I then been acquainted with it. "C'est un grand esprit plutôt qu'un grand philosophe. On verra que Locke malgré ce qu'il peut avoir perdu d'autorité, est plus prés de ce dernier titre que lui, car s'il n'eût pas existé, l'histoire de la philosophie n' aurait pas exactement suivi le même cours, tandis que l'eloquent appel de Bacon au génie des sciences lui a valu plus d'admiration que d'influence." Locke gets a fourth of the whole work; but this chiefly consists of a good sketch of his life, and an account of his adversaries and influence, together with criticisms from the author's point of view, some of which we will presently consider. No account of his philosophy is given, on the ground that it may be found in any history of the subject: though, I confess, I do not know where to look for a sufficient one. It is too apt to be assumed that Locke's philosophy is an item of popular information. Hobbes, who on the whole hardly deserves to be subordinated to either Bacon or Locke, is somewhat meagrely treated: and this seems to me to be one of the flaws of the book. A chapter of some forty pages is allotted to him, but it is mainly biographical; and the author excuses himself from expounding Hobbes's doctrines by saying, that only a detailed account could do justice to the philosopher's systematic genius, and that that is more than the doctrines deserve: in which statement the first clause is better than the second.

M. de Rémusat cannot forgive Hobbes his political absolutism and his "atheism"—constructive atheism, say rather; for overt atheism is as far from Hobbes as from Bunyan, and in these pages the charge of atheism is urged against him a little too freely and persistently. Our French critic finds it difficult to understand how English liberals can forgive Hobbes his politics and speak highly of him as a thinker. But it seems that in Hobbes's case the common fate of men has been reversed: the good that he has done lives after him; the evil is interréd with his bones. The idea of a return of absolutism in this country seems to most Englishmen so absurd that they can listen quite good-humouredly to its advocates. Perhaps, however, we should spare a thought for others. But even if absolutism should return, whether here or elsewhere, it can hardly stand upon Hobbes's basis; and as for his name and authority, innumerable enemies have abused him too successfully to leave much influence to that. Besides, the strength of tyranny lies not in the arguments of its apologists, but in the character of its slaves. So that we may feel free to admire whatever good was to be found in Hobbes: his daring and powerful speculation, at once radical and systematic, a notable and precious possession in a country where such work is rare; his great manner of exposition, in which rigour is always tempered with humour and sound sense; and the many truths and countless suggestions everywhere embedded in his writings. Nor is it possible to overestimate his importance as a force in the literature of his age, both generally by setting an example of proof by reasoning, instead of by merely quoting authorities (though none could manipulate the authorities more ingeniously), and especially by inciting the advocates of more truly reasonable opinions to try to show that reason was on their side. Hobbes's admirers need never regret to have checked his career along the road to oblivion, even if *Leviathan*, besides being reprinted, should again be read.

Nor are all M. de Rémusat's particular criticisms of Hobbes in his best manner. At the beginning of the chapter appropriated to him, he writes: "Je ne sais qu'un philosophe de quelque renom qui puisse être appelé Baconien, et qui représente sans nuance et sans restriction l'empirisme ou le sensualisme absolu: c'est Thomas Hobbes." But it strikes the reader that a Baconian is not quite the same as a representative of absolute empiricism and sensationalism; and that precisely in as much as these characters differ, Hobbes was not a Baconian. Few writers so abound in conceptions hastily caught up, arbitrarily defined, and worked out ruthlessly in contempt of negative instances.

Almost on a level with Hobbes, M. de Rémusat finds a place for Lord Herbert of Cherbury: I do not know that it is overestimating the case to call this neglected thinker the hero of the work; and the author has entirely devoted to him another very instructive essay.* He here observes that Herbert anticipated, rather than prepared the way for, the later Scotch and French philosophies, which have followed without imitating him. And in a *résumé* of English philosophy previous to Locke, our author finds generally that the writers, some of whose names I have enumerated above, agree for the most part in recognising, although in a somewhat confused and imperfect way, the leading principles of Common Sense and Eclectic Rationalism. This is naturally an interesting observation to one who is himself an adherent of those principles; but since little or no influence passed on directly from these early writers to Reid and Cousin, their importance in the history of philosophy is that they were the negative preparation for Locke, whose polemic is too commonly supposed (in spite of internal evidence of the contrary) to have been almost wholly directed against Descartes. Perhaps even Locke's perceptions of

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* *Lord Herbert de Cherbury, sa vie, ses œuvres ou les origines de la théologie naturelle et de la philosophie de sens commun en Angleterre.* Paris: 1874.

Descartes were not a little disturbed by preconceptions established in his mind by Lord Herbert and others. It would have been equally interesting to have shown how far amongst his immediate English predecessors Locke's own positions were anticipated.

M. de Rémusat is quite ready to be generous to Locke, whose empire in France was, it seems, "put an end to at the beginning of this century". Locke's theology satisfies, and his politics please, our author; though his psychology is of course inadequate. It is necessary, says M. de Rémusat, to recognise if not exactly innate ideas (an unfortunate phrase) still principles of reason implied in all experience and not derived from it, or, say, the reason itself. Noticing Condillac's position, that ideas, reminiscences, judgments, and abstractions, are only transformed sensation, he remarks: "Mais dans ces termes mêmes, il faut un transformateur. Ce transformateur, c'est l'entendement." But surely this is misleading language. In order that sensations may be transformed there is needed, properly speaking, not a transforming agent, but conditions of transformation. These conditions may sometimes be merely the cessation of a present stimulus, as when a flash of light has passed and left only an idea of it much less vivid and definite; or they may be the lapse of time and intervention of other feelings, whereby our reminiscences decay; or they may be the relations into which given sensations enter with others and with ideas, as in judgment and abstraction. Under such conditions sensations are transformed as a matter of fact: but how the understanding, or the reason, or the will, or the ego interferes with the process or assists it, I do not know, and begin to despair of being made to conceive. Scientific psychology seems to require us to renounce these entities and all their works.

M. de Rémusat thinks that Locke's excessive fear of recognising innate ideas has paralysed his sagacity and prevented his finding in our faculties the truths which their activity presupposes. Unless, he says, there exist certain truths to which our faculties are related, it is plain that they are only a fortuitous and meaningless play. "Citons en exemple la faculté du raisonnement: que veut-elle dire, si elle ne suppose que la conclusion sort des premisses, que la consequence se lie au principe?" If this question is put to an adherent of Locke's school, he will reply that reason, regarded as a mental process, is, in Mill's words, "from particulars to particulars," and has nothing to do with the relationship of premisses and conclusion: a relationship which is incidental, not to the process of reasoning, but to a special mode of formulating in language the result of an already completed ratiocination, together with the proximate conditions of its validity. In an act of reasoning an inference is suggested by certain data with which it happens to be associated; and this some will perhaps consider to presuppose the laws of association. The validity of an inference depends upon the existence of a constant relation between facts, corresponding with the relation between itself and its data: in so far then as an inference involves belief, some will maintain that it presupposes the law of the relation between these facts. In the same sense it might be said that whenever a substance combines chemically with another, it presupposes the law of combining equivalents. That is the sense in which the universal precedes its particulars; which it does, in the opinion of empiricists, no more in thought than in fact.

But I refrain from further criticisms of detail upon a work whose faults of detail are few, whilst sincerity and painstaking research are everywhere manifest in it, and in which well matured judgments and discriminating reflections are so thickly strewn throughout that should a reviewer begin to draw attention to them he need never make an end of commendation. I can, however, imagine a reader complaining that it is on the whole less a history of philosophy in England from Bacon to Locke, that an account of certain English writers of that period who were more or less tinged with philosophy. And these, moreover, are for the most part in relation to philosophy not representative English writers. Their notions and methods are those of the men who do not swim in the stream, but in the eddies and backwater of English thought: the stream does not bear them along with it, and they are more and more lost sight of and forgotten. M. de Remusat truly says of them that they lack elevation less than profundity. How familiar is the transcendental figure that slights his country's philosophy and dares not be other than elevated! Still although a record of second-rate opinion is hardly a history of philosophy, it may be of great use for illustrating the position of those thinkers in whom philosophy has culminated: it would be very useful if it only showed with what a mass of prejudice the better opinion had to struggle.

CARVETH READ.

Dialogues et Fragments Philosophiques. Par ERNEST RENAN. Paris, 1876.

Curious for the insight it gives into the mind of the most widely-read of French philosophical thinkers, this work deserved a passing notice earlier. The *Dialogues* are three in number, bearing the respective titles—Certitudes, Probabilities, Dreams. The first is sustained among three friends all belonging to that school of thinking whose fundamental principles are worship of the ideal, negation of the supernatural and experimental investigation of the real; and the certainties to which the chief speaker, Philalèthe, gives utterance differ only in the setting from characteristic opinions of M. Renan's own expressed in the esssays and letters, written a number of years ago, that are now reprinted (from the *Revue des deux Mondes)* as the *Fragments* of the present volume.[1] Some also of the probabilities and dreams, referred each to a new speaker in the second and third dialogues, may be found not dimly indicated in those earlier papers; but as M. Renan somewhat anxiously disclaims personal responsibility for them in their present form, it is nobody's business to fasten them upon him. He would have the dialogues generally to be regarded as no more than free conversations between the different lobes of his brain, and of course it should not be forgotten that dreams are but dreams, not always wishes, and much less convictions. They were written during the agony of the Commune, and hence their sombre cast. Hence also, it is implied, the degree of their variance from the political ideal of the last years in France; for M. Renan has by him in his desk, from before the time of the *coup d' état*, and will some day publish an essay on the 'Future of Science,' more comforting to people of democratic faith. He hopes, besides, to publish in the future a new book of *Hypothèses*, in which he will proceed on a method partly employed in the present work, and by an ideal construction of different world-systems, each lacking some capital element involved in the present frame of things, will seek to impress the true character of each.

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[1] These are (1) 'Sciences of Nature and Historical Sciences'—letter to M. Berthelot, with his reply; (2) 'Ideal and Positive Science'; (4) 'Metaphysic and its Future'. A letter to M. Guéroult on the theistic question is also included (3).

The certitudes of the first dialogue are but two:—(1) In all parts of the universe within human ken there is no trace of the action of higher beings than men; at the same time (2) the whole world is working towards an end. It is urged, as M. Renan has urged before, that if there were external beings intervening in terrestrial affairs their action could not fail to be perceived: either therefore there are none or, if any actually exist in other worlds, they are powerless to make their existence known across space. But though, so far as appears, there is in the detail of events within the universe nothing expressly intentional apart from the action of men and animals, but everything happens according to general laws from which no single exception for special ends has ever been established, yet, on the other hand, nothing is more clear than that the whole of Nature is in travail, working darkly towards a goal. The proof here led is in the vein of Schopenhauer. Philalèthe sees a manifestation of Will, conscious or unconscious, in all the phenomena of life, high and low; he finds that all particular manifestations from the lowest to the highest subserve no ends of individuals but of species only; he thinks of Nature in general as the great Egoist that is for ever duping the individual for the well-being of the whole; and he parts from Schopenhauer only on the point of the feelings with which the self-conscious victim, man, should bow to the might of the universal process. Not the spirit of revolt, but resignation, gratitude, and love should fill the mind that has awoke to the conception of the unknown aim whither all is tending.

It is thus certain to Philalèthe (and M. Renan) that the universe as a whole reveals an obscure consciousness, spontaneous, analogous to that which presides over the development of the embryo or animal. What the new protagonist, Théophraste, in the second dialogue, thereupon essays is to indicate the probable outcome of this world-process. The obscure spontaneous consciousness, he thinks, is destined to become a clear reflective consciousness. The desire everywhere manifested to be, the universal thirst for consciousness, means that the Ideal will of necessity become realised, and it is ever being realised more and more. All that is good in the universe generally and in the history of humanity becomes capitalised and increases, while things that are not good clash with one another and pass out of being. It may or may not be on earth and by the immediate effort of mankind: where and when in the infinity of space and time it will be brought to pass, cannot be guessed; but here or there, at one time or another, Reason will finally reign, Science will become absolute, and absolute Science means infinite Power. The development in time of a true reflective world-consciousness—this is what M. Renan must be supposed to think at least probable. Can there be any more particular speculation as to its nature? Théoctiste in the third dialogue stands forward to reply with dreams.

The dreams, however, turn out to have reference only to a possible development of man on earth: what might be, if it should be elsewhere and under quite other than human conditions that the world-ideal becomes realised, we are left to guess. On earth, as life actually is, the collective character of animal existence by relation to the component living cells points to the reality of corporate human life in a town—a church—a nation; and as the (so-called) individual man or animal is higher in the scale of life or consciousness than the cell, so the corporate existence is to be ranked higher than the life of the individual. Thus, then, a future consciousness of humanity in general may be conceived, infinitely superior to aught that now exists; humanity becoming, as it were, a great tree, with individuals for shoots, and the consciousness of each being taken up into the consciousness of all. Now, in this relation, there are three conceivable solutions of the problem of humanity, which may be metaphorically described as (1) the democratical, (2) the aristocratical and (3) the monarchical. In accordance with the first of these the higher conscious life to be—the ideal—may be realised by the conversion of all mankind to reason, but this democratic solution is not at all probable. How, for instance, shall women be made rational—women whose business it is to be "good and beautiful"? The attempt to cultivate the many can end only in the extinction of culture. Indeed, the aim of humanity, as things are now, is rather to produce great men with a public to comprehend them, and this at the expense of ignorance in the masses. More likely by far, therefore, is the aristocratical evolution, namely, that out of mankind should arise a limited class of beings perfectly rational, with the omnipotence that comes of omniscience. Powerful enough to make earth a hell to mankind in general, and so in a manner realising the worst terrors of old religion, they yet, as guided by perfect reason, would act like veritable gods. It would probably be only after a period of fearful struggle with the common intelligence of the mass of men that Science could thus gain the upper hand, but once attained its supremacy might become for ever established by incarnation in such a special order of beings. There is no conception worked out more elaborately in the

Dialogues than this one of a spiritual oligarchy wielding material power, and it strikes the reader as something more than a bare dream of M. Renan's.

It has to contend, however, with the third conception—of the world becoming at last one single conscious centre, in accordance with the monarchical ideal in politics and the religious notion of a single Deity. But whether this final term of the 'deific evolution' is to be viewed as excluding all such finite personalities as now exist or as being the resultant of them all, is left undetermined. The dreamer's first privilege of incoherency and inconsistency is indeed put much in force all through; and, from the point of view of sober philosophical criticism, it is extremely difficult to understand the nature of that divine consciousness which is thus to be. It is averred most positively (p. 89) that a consciousness is complete only when it results in an individual identity—in a single sensorium constituted by a nervous mass moving a determinate organism; and this, we know, is the description of a man or animal, without prejudice to the biological truth that the organism is an aggregate of quasi-independent living cells. What then of the consciousness which M. Renan claims, within actual experience, for such a corporate entity as a town, church or nation? It is called superior, but at all events it cannot be "complete". Can then any consciousness that is predicated of the universe present or to came be "complete" either, if no analogue for a brain can be assigned or supposed for it? And if not complete, is there any meaning in describing the more and more perfect outcome of the world-process in terms of consciousness at all? Some feeling of this difficulty was probably in M. Renan's mind, when before the end of the dialogue he makes Théoctiste say that consciousness is after all, perhaps, a secondary form of existence, and that the word has no sense when applied to the All, the Universe, God (p. 140); that it is not consciousness (which has relation to space) but the Idea or Ideal that alone eternally exists. He has urged the same before in the reprinted fragments (see especially p. 253). But then what becomes of the fundamental argument of the work—the "certainty"—that the end to which the whole universe tends is the production of a consciousness (p. 24)?

The book cannot be said to have much philosophical importance, but it discloses very vividly something of the fermentation of thought going on in these days.

EDITOR.

IX.—NEW BOOKS.

[*These Notes are never meant to exclude, and sometimes are intentionally preliminary to, Critical Notices of the more important works later on.*]

Paradoxical Philosophy: A Sequel to the *Unseen Universe.* London: Macmillan, 1878. Pp. 235.

The anonymous "Editors" of this work disclaim, in regard to its conversational form, "any thought of imitating Peacock or Mallock—far less Christopher North, Bunyan, or Plato," and, in point of fact, they do not succeed in attaining the literary level of even the least of these writers. Nor can it be said that the poverty of execution is compensated by novelty of ideas. The book comes after the *Unseen Universe*, but is in no other sense a sequel to that widely-read production. At one place, a short and, on the whole, well-pointed statement of the materialistic view of the universe, put into the mouth of a "Dr. Hermann Stoffkraft," calls forth (from "Stephen Fairbank") a brief rehearsal of some of the main positions in the earlier work—to the almost utter confusion there and then of the worthy German. All the rest is mere by-play of the order before indicated. There is not the least attempt to make the argument of the *Unseen Universe* less irrelevant to the momentous conclusions which it was, evidently in good faith, intended by its distinguished authors to support. And yet, "in the compilation of this small volume," such as it is, the Editors say they "have to record with gratitude the assistance rendered to them by various members" of a certain Society called the "Paradoxical".

The Art of Scientific Discovery; or, The General Conditions and Methods of Research in Physics and Chemistry. By G. Gore, LL.D., F.R.S. London: Longmans, 1878. Pp. 648.

"The object of this treatise is to describe the nature of original Scientific Research, the chief personal conditions of success in its pursuit, the general methods by which discoveries are made in Physics and Chemistry, and the causes of its failure; and thus to elucidate, so far as possible, the special mental conditions and processes by means of which the mind of man ascends from the known to the unknown in matters of science. . . . The book is divided into five parts—the first containing a general view of the subject; the second, general conditions of research; the third, personal preparations of research; the fourth, actual working in the art; and the fifth, various special methods of discovery, classified and illustrated by numerous examples."

Education as a Science. By Alexander Bain, LL.D. (International Scientific Series), London: Kegan Paul & Co., 1879.

The four articles bearing the above title, contributed by the author to Mind, make the psychological introduction to the present volume, being almost one-fourth of the whole. The remaining three-fourths discuss the more special educational topics. A chapter is devoted to the explanation of a number of terms and phrases that play a leading part in the various discussions:—Memory, Judgment, Imagination, Information and Training, &c. Next is a chapter on Education Values, or an estimate of the comparative worth of the usual subjects of instruction: a large space being given to Science. Under the designation, Sequence of Subjects (Psychological and Logical), a number of matters have been brought to the foreground to lighten the burden of the chief topic—the Methods of Teaching. This topic is then entered on; and includes, among the more obvious points, a minute handling of the Object Lesson, the scope of which the author considers to stand in want of being more carefully assigned than has yet been done. A separate chapter is devoted to the Mother Tongue. Then follows a discussion of the utility of Latin and Greek; to which is appended a proposal for a Renovated Curriculum of the higher studies. Finally, a long chapter is given to Moral Education, and a shorter one to Art. "The general strain of the work is a war not so much against error as against confusion." The author takes "every opportunity of urging that the division of labour in the shape of disjoining incongruous exercises, is a chief requisite in any attempt to remodel the teaching art".

Education: Intellectual, Moral and Physical. By HERBERT SPENCER. Cheap edition. London and Edinburgh: Williams & Norgate, 1878. Pp. 171.

Besides being largely read in the United States, Mr. Spencer's *Education* has been translated into French, German, Italian, Russian, Hungarian, Dutch and Danish, and he wishes now by this cheap edition to make it accessible to a wider circle of readers at home. The text is reproduced without change, more pressing occupations standing in the way of the revision it would otherwise have undergone.

The Localisation of Cerebral Disease. Being the Gulstonian Lectures of the Royal College of Physicians for 1878. By DAVID FERRIER, M.D., F.R.S. London: Smith, Elder & Co., 1878.

"These lectures are intended to serve as the complement from a clinical and pathological stand-point of the author's work on "The Functions of the Brain". They retain the form in which they were delivered as the Gulstonian Lectures of the College of Physicians, but have been revised and supplemented by numerous additional facts and illustrations."

The Principles of Human Knowledge: being Berkeley's celebrated Treatise of the Nature of Material Substance (and its relation to the Absolute), with a brief Introduction to the Doctrine and full Explanations of the Text; followed by an Appendix with Remarks on Kant and Hume. By COLLYNS SYMON, LL.D. London: Tegg, 1878. Pp. 220.

Dr. Symon claims that this is "the only edition with explanations that has ever been prepared by an adherent of Berkeley," and further that he is the only adherent "who has been found to raise his voice against the increasing misrepresentations of hostile editors and adversaries". Who exactly these are is never expressly stated by Dr. Symon, but in his Introduction he sets out (not for the first time) with a particularity that leaves nothing to be desired, a list, in thirty-six propositions, "of the egregious blunderings that are to be met with in books upon this subject among the other nations of Europe as well as among ourselves". In an appendix he seeks to trace back to Hume through Kant and Reid the origin of the misrepresentations of the true Berkeleyan doctrine; Hume, as he has managed to discover, having first, when he was "an attorney's clerk in Edinburgh" (!), attacked the doctrine of Phenomenal Matter as pure nonsense, and next, when he found this of no avail, having turned round and allowed the doctrine to be true, but (like the "merry Scotsman" he was) pretended that it lent the most admirable support to Scepticism. The fault of Reid and Kant, when their turn came, lay in their not seeing that Hume "was merely and undisguisedly sarcastic and in jest, never in earnest, in what he wrote on Metaphysics". They took him for a serious writer, and this has been ever since believed without question, till now when the strange misconception is for the first time pointed out by Dr. Symon. Berkeley's treatise itself is, in the present edition, split up into three parts and these again into chapters, corresponding with the main divisions of the argument. Besides explanatory headings and notes, there is also given in a "General Index" at the end a restatement of the editor's interpretations in alphabetical order of topics.

René Descartes : His Life and Meditations. A new Translation of the *Meditationes,* with Introduction, Memoir, and Commentary. By Richard Lowndes. London : F. Norgate, 1878.

Lighting some little time ago on Kuno Fischer's *History of Modern Philosophy,* Mr. Lowndes was drawn afresh to the study of Kant, Leibnitz, and Descartes—particularly Descartes, and conceived the design of translating the *Meditationes,* apparently in ignorance at that time of Prof. Veitch's version (which is hardly "scarce") and the earlier version of Molyneux, though they have since become known to him. He gives the following account of other parts of his work :—

> "The Introduction, for which the materials have for the most part been stolen from Fischer, and the concluding observations, or Commentary, are simply intended to fix the place of the *Meditations* in the history of philosophy, by exhibiting, on the one side the state of the science at the time the *Meditations* were written, and, on the other, the manner in which the problems and solutions of Descartes are taken up into the system of Kant."

Philosophical Fragments, written during Intervals of Business. By J. D. Morell, LL.D. London : Longmans, 1878. Pp. 278.

Following the lines of thought taken up in his previous works, the author here gives first a sketch of German Philosophy from Leibnitz down to the present time ; secondly, a chapter on the Theory of Knowledge, in which he seeks to prove that the inductive method is "the real and proper method for the human intellect to follow even in the most recondite and metaphysical researches" ; thirdly (in the form of three lectures) "an application of some of the modern doctrines of psychology to the principles of Education"; finally, a postscript on the latest phase of Hartmann's Philosophy.

Final Causes: By PAUL JANET, Member of the Institute, Professor at the Faculté des Lettres of Paris. Translated from the French by William Affleck, B.D., with Preface by Robert Flint, D.D., LL.D., Professor of Divinity, University of Edinburgh. Edinburgh: T. & T. Clark, 1878. Pp. 508.

This work, by the present leader of French spiritualistic philosophy, has already, in its original form (1876), been critically noticed in MIND, No. VI. Translated now for English readers, it is first of all prefaced by the author himself, who is particularly gratified "to be introduced in England by way of Scotland, that country of profound reason, where wisdom has always been mingled with a certain agreeableness and good grace commanding sympathy". "Great Britain (he adds) has always been the claasic land of final causes: it is there that national theology originated, has been developed, and has held its ground with honour down to our days." The present work, however, is "not a treatise of natural theology, but an analytical and critical treatise on the principle of final causes itself"; "its foundations, authority, limits and signification" being sought "by confronting it with the data and conditions of modern science as well as with the doctrines of the boldest and most recent metaphysics".

Prof. Flint, who adds another preface, says of the book that, "although not an absolutely exhaustive treatise on final causes, seeing that it does not attempt to trace their presence in the regions of intellect and emotion, morality and history, it is the most comprehensive work which has been written on the subject". He further defends it against some of the strictures passed by M. Janet's critic in MIND; in particular urging that the main idea of the book was not seized, namely, that final causes are not inconsistent with causation, and maintaining against the critic (Mr. Sully) that our knowledge of design in nature is related to our knowledge of conscious thoughts and volitions in each other, since the only evidences for the existence of other human minds are evidences of design.

The Ethics of Positivism: A Critical Study. By GIACOMO BARZELLOTTI, Professor of Philosophy at the Liceo Dante, Florence. New York: Somerby, 1878.

Prof. Barzellotti's essay, *La Morale nella Filosofia positiva*, when it appeared in 1871, drew considerable attention in this country as the work of a well-informed and equitable, if not exactly smpathetic, critic of English Ethical Science. The Essay was predominantly a criticism of English ethics; the word 'positive' being used in the wider sense now not uncommon, as synonymous with 'scientific' (that is to say, 'in the spirit of the *natural* sciences'), and English philosophy appearing to the author most to conform to that description. In a new preface (pp. xxiv.) written for the present translation, the author seeks to reply more especially to Mr. Sidgwick's criticism of his essay in the *Academy* of 1st July, 1872. Charged with confounding Egoistic and Universalistic Hedonism under the common term of Utilitarianism and with representing the whole history of ethical controversy as a duel between Intuitionists and Utilitarians, he maintains that to him, trying theoretically to account for moral obligation, only two principles could appear "distinct and irreducible, *viz.*, the principle of absolute obligation and the *opposite* principle of relative or conditional obligation—the principle of happiness, of the useful, of interest whether general or individual". On another point remarked upon by Mr. Sidgwick, namely, the assertion that no moral investigation properly so called can be based on the doctrines of Comte, Prof. Barzellotti is willing to accept his critic's statement that Comte did not so much pretermit introspective observation as practise it in the unreflective, unanalytical way of common life. Still he finds Comte's radical fault to be that, "from the *fact* objectively observed that human beings *act* on each other through their social relations by virtue of certain impulses, he passes to the conclusion that they must consequently act so and so in virtue of a moral necessity"; though the fault is shared by all "the followers of inductive morality". The translation is by Signor E. Gandolfo in conjunction with Miss I. I. Olcott.

Des Sociétés Animales : Étude de Psychologie comparée. Par ALFRED ESPINAS. 2nd Edition. Paris: Germer Baillière, 1878. Pp. 588.

M. Espinas's remarkable study in comparative psychology, reviewed in MIND IX., appears now in a second edition, increased by about half its original size. The increase consists mainly of a comprehensive Historical Introduction (pp. 155), in which the author seeks "to pass under review the principal systems of social philosophy, in their main features, so as to discover the various solutions of which the problem of social life in general admits, and also to determine what theories have been broached, were it only incidentally, by philosophers on the subject of animal societies in particular."

La Morale d'Epicure et ses Rapports avec les Doctrines contemporaines. Par M. GUYAU. Paris: G. Baillière, 1878. Pp. 290.

"This volume is the first half of a Memoir *couronné* in 1874 by the *Académie des Sciences Morales et Politiques*, its publication having been delayed till now by the author's ill-health. The original Memoir, which was very long, had for its subject the Utilitarian Morality and extended from Epicurus to the English school of the present day. After having recast and completed all that concerned Epicurus and his direct successors, the author thought it right to make of this a separate volume. Epicurus is one of those philosophers whose ideas are most powerful in the present time; he is one of the most modern of the ancients, and his ethical system, sometimes so ill understood, has seemed to the author worthy of a special and conscientious study.

The second part of the original Memoir will be published presently under the title *La Morale Anglaise contemporaine (Evolution et Darwinisme).*"

L'idée moderne du Droit en Allemagne, en Angleterre et en France. Par Alfred Fouillée, Maître de Conférences à l'École Normale Supérieure. Paris: Hachette, 1878. Pp. 364.

The author who has already left his mark on contemporary philosophy by an original treatment of the ethical question of Liberty and Determinism (*La liberté et le déterminisme*, 1872; see Mind VI., p. 372), makes here a new application of his characteristic method. According to him,

> "Philosophy in the 19th century has set itself to analyse the ideas on which men have hitherto rested their moral, social and religious beliefs, . . . and among the ideas which have to become transformed, if they are not to disappear, the notion of Right or Law is one of the foremost, inseparable as it is from the notions of Liberty and Duty. The older spiritualism can no longer be maintained; the metaphysical entities to which it appealed are as impotent in the question of Right as in that of moral liberty. Must the conception of "Rights of Man" then be rejected, even as a pure ideal? Has Germany or England been better inspired than France in referring the whole civic and political order to a simple combination of forces or of interests, and in opposing the principle of aristocratic inequality to that of democratic equality? Perhaps we shall come to see that each of the three points of view taken by the chief modern peoples has its relative truth. Perhaps it is possible to construct a new theory of Right, at once naturalistic and idealistic, and comprehensive enough to reconcile all the adverse systems."

Prolegomena zu einer anthropologischen Philosophie Von Dr. Friedrich von Bárenbach. Leipzig: Barth, 1879. Pp. 386.

This is the first part of a new *Foundation of Critical Pilosophy*, to be followed by other parts having each a certain independence but all subserving the one end of establishing by the side of the special sciences a philosophy in the strictest sense scientific. The present first part has for its special subject the "Axioms of the Critical Theory of Knowledge". The author's conception of philosophy, as bound to be anthropological, does not essentially differ from that which has long prevailed in this country, though it is carried out by him according to the critical method of Kant, instead of being based, as in England, both before and after the time of Kant, on the results of psychological inquiry. In following Kant's lead, however, the author does not neglect the later works of English thinkers.

Excerpta e Libro Alfredi Anglici "De Motu Cordis," item Costa-Ben-Lucae "De Differentia Animae et Spiritus" Liber translatus a Johanne Hispalensi. Als Beiträge zur Geschichte der Anthropologie und Psychologie des Mittelalters, nach handschriftlicher Ueberlieferung herausgegeben und mit einer einleitenden Abhandlung und Anmerkungen versehen. Von Dr. Carl Sigmund Barach. Innsbruck: Wagner, 1878. Pp. 139.

This is the second part (the first was noticed in Mind V.) of the *Bibliotheca Philosophorum Mediæ Aetatis*, designed in a most praiseworthy manner to fill the gaps in our knowledge of the philosophical literature of the Middle Ages. Prof. Barach seeks in the present issue to give an insight into the anthropological and psychological thought of the period, selecting the work *De Motu Cordis* of Alfred Anglicus, hitherto unprinted, though freely referred to in the MS. form by Hauréau and others. More than half of the whole work is given in selected excerpts, the rest being omitted only because it consists of mere repetitions or because of the hopeless corruption of the text. There is added a Latin translation of the Arabian treatise, also hitherto unprinted, of Costa-Ben-Luca *De Differentia Animae et Spiritus*, from which Alfred chiefly drew and which was otherwise much considered in the Middle Age. Costa-Ben-Luca was a Christian physician and philosopher of Baalbec and Bagdad, living from 864 to 923. Alfred's date has given rise to much question. Prof. Barach, after a careful investigation, assigns 1220-27 as the period of his literary activity. The treatise *De Motu Cordis* is truly mediæval in being based on the record (mostly defective) of earlier opinions rather than on fresh and original observation, but it is full of historical interest as showing how marked was the desire, before the modern period, to establish a definite relation between mind and the bodily organs. Prof. Barach quotes in regard to it Hauréau's striking observation on Scholasticism generally—"La scolastique, c'est la révolution qui se prépare".

Phänomenologie des sittlichen Bewusstseins. Prolegomena zu einer jeden künftigen Ethik. Von Eduard von Hartmann. Berlin, 1879. Pp. 871.

This work (which appears ten years after the publication of the *Philosophie des Unbewussten*) is intended to prepare the way for a scientific system of Ethics, by a critical review of the facts of our moral consciousness, and statement of the principles which they seem to imply. The first division of the book (100 pages) is entitled "The pseudo-moral consciousness as propaedeutic for Morality," and is subdivided into (1) Egoistic Pseudo-morality and (2) Heteronomous Pseudo-morality: in other words, the principles of Individual Happiness and an external authoritative Rule of Right. The remainder of the book is divided into three parts: (*a*) The springs of Morality, or the subjective moral principles, (*b*) Moral Ends, or the objective moral principles, and (*c*) The foundations of Morality, or the absolute moral principles. In the first part we have a discussion of the Morality of Taste or the æsthetic springs of action, of the Morality of Sentiment, and of the function of Reason with regard to Conduct. The objective principles are two—the social eudaemonistic and the evolutionary (the development of culture), their combination furnishing the conception of a moral world-order as τέλος. The last hundred pages treat of the absolute principles needed for the support of empirical moral ends.

Geschichte der philosophischen Terminologie. Im Umriss dargestellt. Von RUDOLF EUCKEN, Professor in Jena. Leipzig: Veit, 1879. Pp. 226.

The author fell upon the idea of this work in the course of a general investigation into the history of philosophical notions. The question of terminology was inevitably involved with this, and it seemed to him that a separate treatment of it might be useful; more especially as, six years ago, he had been moved to propose in the *Philosophische Monatshefte* that some learned society should undertake the production of a dictionary of philosophical terms, and meanwhile, though the proposal had been highly approved of in many quarters, nothing had been done towards its realisation. The present attempt has not been made with any notion of its being more than a beginning. The history of philosophical terminology is traced successfully among (1) the Greeks, (2) the Romans and the Schoolmen, /ive (3) the Moderns, (4) the Germans. There follows next a discussion of the history of particular terms; and the necessary index is supplied at the close.

Logik. Von Dr. CHRISTOPH SIGWART, o.ö., Professor der Philosophie an der Universität Tübingen. 2ter Band. Die Methodenlehre. Tübingen: Laupp, 1878. Pp. 612.

The concluding volume of the author's comprehensive treatise. It has given him, he says, great satisfaction to find that in one chief department of methodology, the theory of induction, Professor Jevons's views in the *Principles of Science* are in essential agreement with his own; but he has been more sparing than Professor Jevons in his references to the history of science, preferring to illustrate the abstractions of Logic by things familiarly known.

Die Physiologie des Schönen. Von S. BYK. Leipzig: Schäfer, 1878. Pp. 286.

An analysis of the Beautiful and description of its various forms in nature and art, embodying the results of long-continued observation and reflection, and written down by way of mental recreation in the interval between the composition of the first and second parts of the author's *Vorsokratische Philosophie der Griechen.* The author claims as an advantage in treating the subject, that he neither has a metaphysical system of his own nor is prepared to subscribe absolutely to to the system of anybody else.

Tipui sovremennoi filosofskoi muisli v Germanii. Ocherki iz puteshestviya za granitsu. (*Characteristics of Contemporary Philosophical Thought in Germany. Sketches from a foreign journey.*) By P. MILOSLAVSKY, Professor of Philosophy in the University of Kazan. Kazan, 1878.

The author sends the following statement:—

"In the argumentative part of this work it is contended that a scientific philosophy cannot be constructed *á priori* without reference to scientific experience. By scientific and philosophical analysis of mind and body it has been established that human knowledge cannot be absolute, but it is no less true that our nescience is relative also : in the nature of external things, and of the organism with its mental endowment, there is no more ground for absolute nescience than for absolute science of anything. Now, if all natural phenomena whatever were appropriated by different classes of special inquirers, there could be no question of a philosophy in-independent of the sciences. But it is not to be forgotten that all special scientific inquiries, and the phenomena of human knowledge generally from prehistoric times to the present day, themselves constitute a particular class of real and natural phenomena ; and these, while not to be confounded with the related subjects of psychology or logic, are left for special investigation by the philosopher. Philosophy, in fact, may be viewed as itself a positive natural and special science, having for its subject the methodical scientific investigation of the relations and laws of human knowledge and the world as known. From this point of view there is no philosophical problem, even the most perplexed, that may not admit of scientific resolution, and only such a Philosophy is able to bring into organic unity the separate philosophies of 'religion,' 'history,' 'right,' 'art,' &c."

N. Grote. *Snovidenia kak Predmet naoutschnago Analisa (Dreams as an Object of Scientific Analysis).* Kiev, 1878. Pp. 68.

The author is professor of philosophy in the Institute of Prince Besborodko, Njeschin, Russia, and this was his inaugural thesis. It is an attempt to treat dreams in a strictly *scientific* spirit, to the exclusion (1) of the *prehistoric* view, found still among savage tribes, which ascribes to dreams an objective reality, and (2) the *symbolic* view, which regards them more or less as porttens. The scientific explanation seeks to assign their physiological conditions in the nervous system and their psychological constituents in the foregone experience of the individual. Physiologically, dreams are due to disordered brain activity, some parts being excited or over-excited while others are more or less exhausted. This being so it is a mistake to suppose, with Volkmann, that dreams afford, subjectively, a revelation of the true moral character of the individual. They are rather to be viewed, with Maury, as a rudimentary form of mental alienation.

The Colour-Sense, its Origin and Development: An Essay in Comparative Psychology. By Grant Allen Trübner and Co.

" Starting with the objective nature of Colour as depending on frequency of æther-waves, this *forthcoming* work endeavours to determine the causes which led to the evolution among animals of an organ capable of differential stimulation by the different colours. It traces the mutual reactions of insects and flowers, and of birds or mammals and fruits ; collects the evidence in favour of the existence of a colour-sense among articulates and vertebrates ; and discusses the mode in which it most probably arose. Then, after considering the nature of Taste, it points out the reasons for believing that a taste for bright colours exists only amongst fruit-eating or flower-haunting animals, and that they alone show secondary marks of its effects in the sexual selection of brilliant mates. Coming down to man, it combats the " Historical Development" theory of Geiger, Magnus, and

Gladstone; asserts the community of colour-perception throughout the whole race; and gives evidence from ancient art-products and modern savage life. A chapter is then devoted to the æsthetic value of colour; and the work closes with an inquiry into the growth of the colour-vocabulary."

The Realistic Assumptions of Modern Science examined. By THOMAS MARTIN HERBERT, M.A., late Professor of Church History and Philosophy in the Lancashire Independent College, Manchester. London: Macmillan & Co., 1878.

"This *forthcoming* work is an attempt to show that Realism, when followed out to its logical consequences, confutes its claim to represent things as they are, and demonstrates that its assertions can be valid only within the limits of phenomena, or respecting things as they seem. Various Dualistic Theories of Mind and Matter having been examined, the futility of all attempts to explain the connexion between brain-changes and thoughts is pointed out, and the conclusion is arrived at that it is absolutely impossible to combine movements and thoughts, as we conceive them, into one self-consistent scheme; but that dealing with the facts of the material world, as physical science deals with them, we can find no trace of, no room for, any facts of consciousness. This conclusion is confirmed by a consideration of the failure of Realistic Science to explain the connexion of a sensation with its distant object, the realisation of a purpose, the rational character of mental life, the moral and spiritual nature of man, the facts of memory and an enduring Ego, the conceptions of Time, Space, and Energy, and our conviction of the existence of an external Power as the cause of sensation. The argument proceeds to show that it is necessary to transcend phenomena, and recognise *efficient* cause or power in order to escape Idealism and arrive at anything external; and that Positivists violate their fundamental principle in assuming phenomena to be external and to have occurred in succession. It is contended that it is in virtue of inferences which transcend phenomena that we recognise external force or efficient causation, or believe in the existence either of a permanent Ego or of other minds like our own; and that the belief in a God is a conviction resting upon similar grounds, and one that must stand or fall according as those other conclusions are accepted or rejected. It is further maintained that personal attributes furnish the loftiest conceptions we can frame of the Divine Being; and that such conceptions, whilst necessarily relative, are as real and reliable as any knowledge we can possess."

MISCELLANEOUS.

MR. GEORGE HENRY LEWES, died at his residence the Priory, North Bank, on the 30th November, after an illness of ten days, and was buried at Highgate Cemetery on the 4th December. One of the foremost philosophical workers of his generation has thus most unexpectedly and almost suddenly been removed at the time when he could least be spared. Mr. Lewes, in the execution of his comprehensive philosophical enterprise, was just approaching those "Problems of Life and Mind" with which he had acquired an exceptional fitness to deal. It had been, he tells us, his original intention to include in his last published (third) volume, *The Physical Basis of Mind*, an exposition of the part he conceived the brain to play in physiological and psychological processes, but this he had to postpone till it could be accompanied by a previous survey of the psychological processes that would make the exposition intelligible. Such a survey, if it included a detailed treatment of the relation of the individual mind to that "social medium" which the author in his first volume had so impressively accentuated in general terms, might be expected to mark a real advance in pyschological science; while his original researches into the nervous system, protracted through many years, could not fail to give him a familiarity with the necessary physiological data hitherto enjoyed by few professed psychologists. Fortunately, there is reason to believe that the composition of the expected fourth volume is left in an advanced state, and it is, moreover, understood that the work of editing this and Mr. Lewes's other philosophical remains will be undertaken by one who is not more fitted for such a task by knowledge of her life-companion's inmost thoughts than by surpassing native endowment. Mr. Lewes was born in London in April, 1817, and was educated by Dr. Burney at Greenwich. After being employed for a short time as a merchant's clerk and having also begun the study of medicine, he went abroad in 1838 to learn the German language and study philosophy. Returning home in 1839, at the age of 22, he adopted the profession of literature and for many years displayed extraordinary versatility as journalist, reviewer and author. The stages of his advance as a philosophical and scientific writer are these :—*Biographical History of Philosophy from Thales to Comte* in 1845, 2nd edition enlarged in 1857, 3rd edition still more enlarged and with the new title *History of Philosophy* in 1867, 4th edition in 1874; *Comte's Philosophy of the Sciences* in 1853; *Physiology of Common Life* in 1859-60; *Aristotle: a Chapter from the History of Science* in 1864; *Problems of Life and Mind*, 3 vols., in 1875-7.

MR. HERBERT SPENCER has deferred the continuation of his *Principles of Sociology*, and is now engaged upon the *Principles of Morality*, which has always been designed as the crowning work in his "System of Philosophy".

Mr. W. C. Coupland has undertaken (for Messrs. Trübner) the translation of Hartmann's *Philosophie des Unbewussten.*

Dr. Maudsley has retired, after fifteen years' service, from the joint-editorship of *The Journal of Mental Science*, published by authority of the Medico-Psychological Association. Dr. T. S. Clouston who was associated of late years with Dr. Maudsley, has now associated with him in the editorship (since the number of October last) Drs. D. Hack Tuke and Geo, H. Savage.

Mr. Malcolm Guthrie, who sent us word a year ago of the formation in Liverpool of a club for philosophical reading, now sends a copy of a printed program for 1878-9, according to which the club is now definitely constituted under the title of "Society for the Critical Examination of Modern Philosophy," meaning "the systematic study and discussion of such Philosophical Works as may from time to time be decided upon by a majority of the members, the subject for each evening to be introduced by a member in a critical or expository statement of a section of the work under consideration." The Society meets once a month at the Royal Institution, Colquitt Street. Lewes's *Problems of Life and Mind*, Vol. I., is the subject of study for the present session.

Mr. David Syme writes as follows from Melbourne :—

"I was much interested in reading the Rev. W. Cunningham's essay on "Political Economy as a Moral Science" in the July number of Mind. In that essay Mr. Cunningham lays down the following propositions :—

1. That things in themselves have no place in Political Economy, but only things as known and as used.
2. That value, therefore, is not an inherent quality in a commodity, but only a relation.
3. That economic phenomena are not the effects of one force, but of many ; that these forces are not physical but mental, and that Political Economy is therefore not a physical, or an exact, but a moral science.

It is only due to myself to state that the above propositions are fully stated, and for the first time as far as I am aware, in my *Outlines of an Industrial Science*, published (by Messrs Henry S. King & Co.) about two years ago. Mr. Cunningham, however, appears not to have seen my work —a gratifying fact in one respect, proving as it does that we have both arrived at the same results by independent investigation."

Mr. C. Evans, writing from Llandaff, sends the following on "Temperature and Touch":—

"Might not experiments upon parts of the body, as feet or arms, which are 'gone to sleep' help to furnish a solution of the puzzling question as to the connexion between touch and temperature? Among the arguments brought forward in support of the view that feelings of touch and feelings of temperature do not come from the same nerves, I have never heard this kind of test mentioned. Yet if, *e.g.*, one's foot is so sound 'asleep' that one cannot feel the pressure of the floor when using it to stand on (the foot being shod as usual or in contact with a carpet), is it not the case that if one steps on a cold surface, as stone or polished wood, the foot that is asleep gives at least as strong a sensation of cold as the other foot, which is not asleep?"

The Journal of Speculative Philosophy.—Vol. XII. No. 4. F. A. Henry—‘Christianity and the Clearing-up’. J. Royce—‘Schiller's Ethical Studies’. R. H. Worthington—‘Jacobi and the Philosophy of Faith’. Hegel—‘On Romantic Art’ (transl.). G. B. Halsted—‘Statement and Reduction of Syllogism’. Notes and Discussions.

Revue Philosophique.—3me Année, No. X. H. Taine—‘Géographie et Mécanique cérébrales’. Carrau—‘Moralistes Anglais contemporains : M. Lecky’. Séailles—‘Philosophes contemporains : M. Ravaisson’. Notes et Documents—‘La Conscience sous l' action du Chloroforme, d' après H. Spencer’. ‘De la Durée des actes psychiques élémentaires, d'après Kries et Auerbach’. Analyses et Comptes-rendus. Revue des Périodiques étrangers. Correspondance. No. XI. A. Dastre—‘Le problème physiologique de la vie’. G. Compayré—‘La psychologie de l' enfant, d'après des publications récentes’. H. Joly—‘La jeunesse de Leibniz à l' Université de Leipzig’. Notes et Documents—‘L' Intelligence animale, d'après M. Romanes’. ‘Note sur le sens musculaire, par le Dr. G. Pouchet. Analyses et Comptes-rendus. Notices bibliographiques. Rev. des Périod. No. XII. C. S. Peirce—‘La Logique de la Science’ (I.). A. Penjon—‘La Métaphysique phénoméniste en Angleterre : M. Shadworth-Hodgson’ (I.). P. Regnaud—Études de Philosophie indienne, l' École Vedanta’. Variétés —‘Les Etudes psychologiques en Allemagne: M. Lazarus,’ par Th. Reinach. Analyses et comptes-rendus. Rev. des Périodiques étrangers.

La Critique Philosophique.—VIIme Année, Nos. 33-45. C. Renouvier—‘La question de la certitude : Le pari de Pascal et le pari de M. W. James’ (33) ; ‘Des notions de matière et de force dans les sciences de la nature’ (33, 36, 37, 38) ; ‘Une prétendue conversion’ (34); ‘Examen critique des principes de psychologie de H. Spencer : La question de l' origine des connaissances’ (34) ; L' immortalité conditionelle’ (40) ; ‘L' esprit révolutionnaire avant la révolution’ (44). F. Pillon—‘Les chatiments corporels dans l' éducation’ (35) ; ‘M. Wallace et le Darwinisme’ (43, 44). Ch. Dollfus —‘Dieu et la vie future’ (39). Biblographie (37, 38, 39, 40, 41).

Zeitschrift für Philosophie, &c.—Bd. LXIII., Heft 2. G. Glogau—‘Darlegung u. Kritik des Grundgedankens der cartesianischen Metaphysik’. E. Dreher—‘Zum Verständniss der Sinneswahrnehmunger'nn (V.) Recensionen. Bibliographie.

Zeitschrift für Völkerpsychologie u. Sprachwissenschaft.—Bd. X., Heft 4. Dr. G. Glogau—‘Die Grundbegriffe der Metaphysik und Ethik im Lichte der neueren Psychologie’ (II). M. Kulischer—‘Das communale Eigentum in Russland’. M. Kulischer—‘Der Handel auf den primitiven Culturstufen’. Beurteilungen.

Vierteljahrsschrift für wissenschaftliche Philosophie.—Bd. II. Heft 4. C. H. Schneider—‘Warum bemerken wir mässig bewegte Dinge leichter als ruhende?’ H. Vaihinger—‘Das Entwickelungsgesetz der Vorstellungen über das Reale’. (2.) H. Weissenborn—‘Ueber die neueren Ansichten vom Raum und von den geometrischen Axiomen’ (III.). R. Avenarius—‘In Sachen der wissenschaftlichen Philosophie’ (II.). Recensionen. Entegegnungen u. Berichtigungen. Selbstanzeigen. Philosophische Zeitschriften. Bibliographische Mittheilungen.

Correction.—Dr. Wm. James, the writer of the first article in the present Number, wishes to withdraw the footnote standing first on p. 17.

No. 14.] [April, 1879.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—LAURA BRIDGMAN.

In 1837 a delicate light-haired girl, nearly eight years old, who at the age of 26 months had lost sight, hearing, and to a great extent the senses of smell and taste, from an attack of scarlet fever, was brought from her rural home in New Hampshire to the Perkins Institution for the Blind in Boston. During her long illness all recollection of her babyhood had been completely effaced. Her parents had communicated with her by the simplest signs addressed to her only sense of touch. A pat on the head expressed approval, on the back disapproval. She had been taught to sew, knit, braid, and assist in trifling ways about the work of a farmhouse. Dr. Howe began her instruction by pasting on common objects—chair, spoon, stove, &c.,—their names printed in raised letters. After she had associated the name and the object the labels were taken off, and she was taught to select the object for a corresponding name and *vice versâ*. After a few days, when she had thus learned a small number of names and objects, Dr. Howe gave her a pin and a pen and made her feel his hands as he spelled from *disconnected* letters the two corresponding words. After repeating this process scores of times she suddenly seemed to understand that the signs were complex and must be observed separately, and at last she was able to select from a pile of letters those which spell 'pin' or 'pen' according as one or the other object was given her

This was an immense step. She was now easily taught the names of many other things and to set up types of raised letters, and impressing them upon paper to produce a copy which she could read on the reverse side. After nearly two years of such exercises she was taught words indicative of quality, as 'hard' and 'soft,' and, later, moral qualities, commencing with the figurative use of the words 'sweet' and 'sour,' which as tastes she could slightly distinguish. It was difficult to explain to her why these should precede the substantive, and especially so to make her understand general or abstract expressions of quality, as 'hardness,' 'softness'. Next she was taught words expressive of simple space-relations 'on,' 'in,' 'under,' &c., and later and very easily the use of verbs expressing tangible actions, as 'walk,' 'run,' 'sew,' first in the present indicative and then in other moods and tenses. Instruction in writing which began at this point was at first very puzzling to her, but when she suddenly caught the idea that thus she might communicate with persons whom she did not actually touch, her enthusiasm was great and her progress rapid. Counting, the divisions of time, the simple rules of arithmetic, and, later, fractions and the computation of interest, the elements of algebra and geography, &c., she has been able to comprehend quite clearly.

We have no space to epitomise further the history of her education contained in Dr. Howe's Reports,[1] unfortunately now mostly out of print. His work was so ingenious and successful that it still remains one of the greatest triumphs of paedagogic skill, and his studies of his pupil during the most interesting period of her education may be called almost classical for the psychologist. Few princes have had more devoted pains bestowed on their education. Besides Dr. Howe's personal and constant supervision, an accomplished lady-teacher, who has lately published an interesting sketch of Laura's Life and Education,[2] was engaged for years expressly for her. Laura's curiosity has always been boundless, and she is so demonstrative and affectionate, and so pitiable from the afflictions which have made her famous, that the number of her personal friends and acquaintances has become surprisingly great, while not a few ladies have learned the deaf and dumb alphabet mainly in order to converse with her. The philanthropic interest of Dr. Howe in his pupil (whom he described as living in isolation from all that is best in the intercourse with men and nature, as if at the bottom of a deep well striving to grasp the slender cord by which he at last slowly drew her up into the world of human fellowship) was contagious, and thirty years ago his annual reports of her progress were translated into several European languages and read by thousands with an interest and a sympathy which has been described as creditable to humanity. Her native modesty and conscientiousness, her remarkable cheerfulness and love of every sort of sport and play which she can understand, scarcely less pronounced now in the woman of forty-nine than it was in the girl of sixteen, the amazing rapidity with which she comprehends and uses the deaf and dumb alphabet (sometimes receiving through the hand of an expert teacher every word of a public address as it is given with the loss of scarcely a letter), the decided enlargement of her head in the frontal regions during the early years of her education, her dreams in the finger-language, her curious and expressive vocal sounds, gestures, and facial expressions, the readiness with which she remembers old acquaintances after the lapse of years by the mere touch of the hand,—these and many other facts have been cited and commented upon by scores of writers until it is hardly extravagant to say that comparatively few comprehensive treatises in any department of mental or moral philosophy or psychology written in Europe or America during the last quarter of a century can be found without the mention of her name. Her education has of course always been chiefly in language; yet, like all the blind, and still more those who are both deaf and blind, she is quite nominalistic in her modes of thought, and by no means a mere parrot or word-monger. A word to her, though not a mere *flatus vocis*, is yet only a representation of something definite, specific, and for the most part tangible. It has been often conjectured that intensity and range of emotion depend in some measure upon the intensity and range of the voice, the mobility of the features, &c. The capacities of the hand, physiologically the most objective part of the body, are so different as an organ of expression from those of the larynx that, if this be at all true, we can see here an additional reason why her strange consciousness is at every point so like yet so unlike our own, that we might compare the two as Mr. Herbert Spencer conceives things *per se* may be related to our perceptions of them, *viz.*, as solid objects casting their shadow upon a cylindrical surface where lines and angles are all represented; but in such changed relations and proportions that there is an element of incommensurability between thing and thought at every point.

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[1] The last Report, issued just before Dr. Howe's death, was reprinted in MIND II., pp. 263-7.

[2] *Life and Education of Laura Dewey Bridgman.* By MARY SWIFT LAMSON. Boston: N.E. Pub. Co. 1878.

For years Laura was encouraged to write down every day her experiences, acquisitions and reflections, and her teachers were also in the habit of keeping a diary of her progress. She has also at different periods of her life written three "autobiographies," two of which are mainly devoted to the recollections of child-life at home. She has had quite an extensive correspondence and many of her letters have been collected and preserved by friends. Unhappily very little of this copious material except her own diary and the reports of Dr. Howe has been used by Mrs. Lamson in her recent sketch. Through the kindness of Dr. Anagnos, the successor and son-in-law of Dr. Howe, it was all placed in the writer's hands; and the hospitality of the Perkins Institute for several weeks, together with all needed assistance and information, was generously offered for further observation and experiment. A preliminary sketch of some of the methods and results of these it is now the object of the present article to give. Most of Laura's life has been passed in an atmosphere of womanly sympathy, and the question whether or not she should be submitted to the trifling inconvenience necessary to any psycho-physiological study of her sensations, which may seem to some to bring humanitarian and scientific motives in conflict, appears quite impertinent when we reflect that perhaps no person living owes more to the kindness of her fellow-beings, and that few are less able to repay it otherwise.

During the first twenty-six months of her life, before the illness in which the contents of her eye-balls and ears were discharged by suppuration, she is described as a somewhat precocious child with light blue eyes and an almost morbidly active and sensitive temperament, who had already learned a larger stock of words than most children of that age. Very many adults remember distinct events before the beginning of their third year, and several well-authenticated cases are on record of those who became blind from the sixth to the eighth year, and whose memory of visual conceptions and colour-sensations has persisted through adult years. After carefully questioning her mother and other relatives who have always been interested in these questions, and after several short series of indirect and scores of direct questions addressed to Laura herself with the request that she would "think hard" and answer in writing the next day, and after examining the three "autobiographies" in which she has at different periods of her life striven to recall all traces of early recollections, no reason can be found to believe that any thing whatever previous to the long convalescence which extended from her third to her sixth year has remained or can ever be recalled to her memory. Yet, when we reflect on the amazingly rapid self-education of infantile life through the senses and its fundamental nature, it is impossible to believe that its effect can ever be entirely obliterated. In fact we may recognise in Laura's strange and insatiable curiosity, especially about things which others see and hear, as well as in the suddenness with which insights have so often seemed to break in upon her mind, some sort of sub-conscious reminiscences flashing through the sad background of her childish recollections.

Of the next period of her life, extending to the end of her eighth year, when her education commenced, her memory has always been wonderfully full and complete. In the "autobiography" of 1854 more than forty large and finely written pages are devoted to this period, and a comparison of this with the others, and with her answers to questions based on their contents, shows that she is able to recount still additional details. There is every reason to believe that these are veritable recollections, and that they are not confused with accounts of her childhood rehearsed to her later by parents and friends. She seems to have taken the greatest pleasure in recalling and reflecting upon her early life from the higher standpoint of her *articulate* consciousness, and in recording the events in her quaint and latinistic style. She remembers that she "often subsisted upon many sorts of berries with most luxurious milk in the summer"; how she loved to "reach a great abundance of sour and sweet apples suspending on the branches of the trees"; how "I enjoyed myself exceedingly in observing her [my mother] spin, weave and wind yarns, and doing other things exceedingly," and regretted that "I could not perform the latter for it seemed prodigious"; how much "difficulty it yielded me to make myself understood"; how in a fit of passion "I rejected the poor cat vehemently into the fire". "I was intimately acquainted with my grandfather, who was my male parent's father." She describes the capes, ruffles and bindings of her dresses and those of her friends; tries to explain the process of making candles and soap; remembers pounding up beetles and caterpillars in her mother's mortar, how she used to dress up a boot as a doll, her adventures with domestic animals, her sports, occupations, punishments, medicines and presents, the wrinkles on the hands and faces of her friends, the slender stock of signs by which she communicated with others, and how she strove often vainly to make her wants understood; and pauses occasionally in the narration to wonder at and deplore with a sort of self-pity the ignorance of her early life, or to apologise for that of a quaint old bachelor-friend, who was very kind to her. Her psychical processes during these years, complex as they were, went on and were remembered entirely without the aid of language, which differs from other series of gestures only in being more explicit and capable of development, and in introducing into or imposing upon conscious thought a new logical order. Gesture in general has been described as a language of roots still more primæval than those which philologists seek to determine. Like articulate speech, it is a reflex of apperception, and is demonstrative or predicative, may be very express, or may be reduced to the slightest terms of motor innervation, and has its own distinct syntax, determined perhaps for the most part, as Geiger believed that of oral language to be, by the order in which phenomena affected and interested the sense of sight. Hence in these memoirs of her early life, Laura merely translates a less into a more perfect series of reactions and innervations—a process which probably does not differ so much from the case of a normal adult recalling and reflectively recording his earliest recollections, as language through the fingers and their cerebral centres differs from language through the vocal organs and the island of Reil. At least it will be admitted that Laura's education at first revealed quite as much as it created intelligence, and we must wonder at her remarkable endowments, while we none the less admire the ingenious method by which she was saved from a life of isolation, which would otherwise almost certainly have ended in morbid irritability, melancholy, and finally in insanity or idiocy.

It has been often asked whether she is absolutely deaf or blind, and what is the present condition of her ears and eyes? The eminent Boston aurist, Dr. Clarence J. Blake, who kindly consented at the writer's request to examine her ears, reported as follows:—"Both external ears normal. The right external auditory canal normal in size and contour, and the skin lining the passage healthy and showing no marks of previous inflammation-processes. The right membrana tympani was entirely destroyed with the exception of a narrow rim, the remains of the inferior and posterior portions of the membrane, from which a thin cicatricial tissue extended inward to the promontorium over the stapes and fenestra rotunda. The malleus and incus had disappeared. The mucous membrane of the tympanic cavity presented a normal appearance with the exception of one spot on the promontorium covered with a thin crust of dried secretion about two millimetres in diameter. A band of thin cicatricial tissue also extended across the anterior portion of the tympanic cavity. The left external auditory canal was filled with dark brownish cerumen, on removal of which the passage was found to terminate at a depth of two centimetres in a diaphragm of secondary granulation-tissue completely closing the canal. This diaphragm was concave, very firm, and resisting gentle pressure with a probe, except at the central or thinner portions, where it could be slightly depressed. Its outer covering was continuous with the dermoid lining of the canal." The tests of her sensations of sound were made first with a tuning-fork, with movable clamps and set in vibration by a spring hammer. The stem of the fork was placed between her teeth (false) and pressed against an ordinary telephone-disc, resting successively upon each mastoid process, over the forehead, at the junction of the frontal and sagittal sutures, over the vertex and the occiput. Heavier tuning-forks were afterwards used in the same way, and also in connexion with a series of Helmholtz resonators, the points of which were introduced into the ear (for the use of which and other physiological apparatus the writer was indebted to the kindness of Professor H. P. Bowditch). The most piercing tones of König's rods and the deafening noise produced by slipping the moistened fingers over the end of a toy telephone, one mouth-piece of which covered the external ear, were tried. A large pasteboard trumpet, like those of a megaphone, though smaller, fitted to the osseous socket of the ear, such as has been so useful in some cases of deafness, was used ; and finally electrical irritations were applied to the external ear and sent through various parts of the brain. But all in vain. Once or twice her feeling was described as " like singing " or " as if some one was speaking," but it was generally very certain that her only sensation was that of vibration or jar. Her sensitiveness for the latter is very acute. She commonly describes herself as hearing " through the feet ". In this way she distinguishes not only the step but sometimes even the voice of her acquaintances.

From a rough preliminary experiment it would seem that she is able to distinguish a musical interval of somewhat less than an octave by the sense of touch through the end of the index finger of the right hand, and yet this sense does not appear to recognise sonorous vibrations of less amplitude than normal persons can do in the same way ; thus, although she lives in an absolute stillness, which, according to the speculations of Preyer, a hearing person can never even for an instant attain, she attaches a very definite meaning to the words 'sound' and 'hear'. She also feels of course the vibrations in her own throat when she makes her " noises ". With sensations which in this respect are perhaps scarcely above the average, she is able, without the distractions which continually enter through the normal ear and eye, to concentrate attention upon the meagre data until she has developed a set of perceptions and conceptions so little incommensurate with the ordinary auditory consciousness that they do duty for it to a surprising though still slight extent. Of the physiological basis of this sense of vibration or jarring almost nothing is as yet known. It appears to have some of the characteristics of a distinct and specific and some of a generic sense. Investigations already begun in one of the German laboratories may increase our knowledge of its nature.

If oscillations as such can be directly felt, then the most generic fact of the physical world enters consciousness immediately without passing any "inconceivable chasm".

Dr. O. F. Wadsworth, an accomplished oculist of Boston, who kindly consented to examine her eyes, reports as follows:—"On both sides the lids are sunken, partly on account of lack of the normal amount of orbital fatty tissue. Partly on account of the small size of the eye-balls, they remain constantly closed. The right conjunctival sac is much smaller than normal, somewhat irregular, and presents an appearance such as is seen after severe and long continued inflammation. The right eye appears about one-half the normal size. It is wholly enclosed by the sclerotica, except over a space at the centre some two millimetres in diameter, where a less opaque tissue on which a few blood-vessels are visible represents the altered remnant of the cornea. The left conjunctival sac is somewhat larger than the right, and more regular, though still small. The left globe also is a little larger than the right, and its opaque altered cornea is some four mm. in horizontal and two mm. in vertical diameter. There was constant irregular oscillation of the globes (nystagmus) whenever they were exposed to view by raising the lids, and the oscillation evidently continued even after the lids were closed." Possibly this was due in part to the excitement of the visit. The sensitiveness of the eyes was still further tested by a ray of sunlight directed to each ball (after the lids had been raised) from a heliostat, and gradually concentrated until the point of almost painful heat was reached; but with no trace of any but a slight "stinging" sensation in the left ball. Gentle pressure and electrical irritation applied both to the orbits and directed through the visual centres produced no effect whatever. During her childhood at home she was just able to distinguish lights and windows in a room and (her mother thinks) to recognise people dressed in white, but these sensations were so feeble that she seems almost never to have utilised them in directing her motions; and even these seem to have been lost soon after she went to the Asylum. She has always, however, especially in bright sunlight, complained of a slight "pricking like needles" in the left eye. Partly for this reason, but chiefly to cover the shrunken globes, she wore constantly for many years a band of heavy green silk bound over both eyes. It is thus manifestly impossible that any, unless it be the most rudimentary, visual impressions can have directly entered as factors into her intellectual development. Hence her notion of colour is even more purely conventional than that of sound. She remembers having learned that mosquitoes, the wind, certain animals, and impacts make a noise, but did not know, or had forgotten, that flies, running water, rubbing the hands, &c., did, and was uncertain about many other things. So she remembers the names of the colours of her dresses, flowers, sky, grass, blood, and often insists that certain garments are too light for winter or too brightly coloured for one of her age. All this, however, is merely conventional and verbal. She has never formed any mental conception of what colour is or is like, as do so many of the blind. It was never in her mind identified with or even analogous to any notion or sensation of sound, smell, taste, or touch, as with so many who have only some or all of their senses.

Whether from her conceptions of space-relations the influence of previous visual impressions has been entirely lost is one of the most difficult and important questions. She is far less "blind-minded" than many of the congenitally blind, yet she forms conceptions of aggregates with difficulty. She knows that her room is square, but is not certain that the house is so. She can form a very poor image of how the grounds with which she is perfectly familiar would look from a house-top, has a very poor notion of perspective, knows very little why or how much objects look smaller at a distance, and is unable to tell without much reflection how many sides of a hexagonal column can be seen from one point of view, though she has learned well that rays of light move in straight lines. In spite of her wonderful powers of recalling past sensations, even those of her childhood, she remembers nothing of seeing, though it is quite impossible to believe that the very many and complex motor reactions and co-ordinations which a bright child learns by means of this sense before the age of two years can have been entirely lost. These, and not the small though essential factors of sensation, constitute education in its enduring results. She turns the head but very slightly in the direction in which her attention is excited, but invariably extends one hand. The irregular motions of the remnant of her eye-balls have also no psychical significance. But the occult effects of the early possession of vision are to be found, if at all, in her wonderful memory for forms and in her perpetual craving for a fuller and larger knowledge than it is possible to convey to her, which rises at times almost to question-mania [*Grübelsucht*]. Even on the basis of the Berkeleyan theory it would be expected that a knowledge of the external world derived through touch and muscle-sense alone would be more *serial* than where the broader and more rapid perceptive processes developed through the visual centres come in, to review, epitomise and extend impressions from without. The question also arises whether a person with for years only a very vague sense of intense light and using this to anticipate tactile impressions, *e.g.*, to avoid the fire and go towards the window, &c.,

would not get through the eye a better because far more serviceable idea of the third dimension of space than of the other two.

The inflammation of the olfactory mucous membrane during her long illness was severe, and the sense of smell was almost entirely lost, though it has slightly improved with advancing years. She has never had the habit which so many blind persons acquire of testing objects by applying them to the nostrils. There is however no deformity or scarification observable without or from a cursory examination within the nose, and the yellow pigment of the schneiderian membrane can be faintly seen by a simple apparatus. According to the very questionable hypothesis of Dr. W. Ogle, this sense might from the first have been rudimentary in a person of her complexion. Her mother, however, does not remember to have noticed during her infancy either the presence or absence of this sense, although the latter would probably have been more conspicuous. At present she loves to smell flowers, and can distinguish a few of the more fragrant varieties. Eau-de-cologne, ammonia, onions, tobacco-smoke, were recognised and distinguished only when quite strong, and the same was true of aromatic flavours. In losing the sense of smell, in some respects the most delicate and the most wonderful (perhaps because the least known) of all the senses, she is deprived of a means of communication with the objective world of the greatest importance to one in her condition. Julia Brace and other blind deaf-mutes have been able to sort the freshly washed clothes of the inmates of a large asylum, and to select and give to their owners several dozen pairs of gloves thrown promiscuously upon a table, solely or mainly by the sense of smell. A hasty experiment with Laura to determine whether smell was more acute in inhalation or exhalation was without result. The sense in both nostrils is about equally intense, and once when eau-de-cologne was applied to one nostril and tobacco to the other, she recognised both. Whether this was done more or less readily than would have been the case if the odour of both had been inhaled with equal strength by both nostrils at the same time seems by no means certain.

Taste is not so much a single sense as a plexus of senses. To sensations of cool, biting and astringent substances, pepper, alum, &c., located in the gums as well as in other parts of the mouth, she is very sensitive; to flavours perceived in the nasal cavity far less so; and of the four tastes proper she seems least sensitive to bitter and sour, most so to sweet and salt; while the observation that the base of the tongue is most sensitive to the first of these tastes, the sides to the second, and the point to the third and fourth appears to have partial verification in her case. She also experiences the peculiar taste caused by electrical stimulation; she is however very far from being indifferent to the kind and quality of her food, but satisfies the very moderate demands of her appetite with a deliberate and almost epicurean discrimination, which suggests the existence of what Professor Bain describes as sense of relish, quite apart from taste proper, and felt perhaps most keenly just as food is leaving or just after it has left the region of the voluntary and entered that of the involuntary muscles of deglutition. The circumvallate papillae have about the same superficial appearance as on an ordinary tongue, perhaps smaller but scarcely less numerous. Both this sense and smell have a strange intermittency, which resembles that of the higher senses and of the intelligence itself in many forms of nervous and mental disease. In making the above observations, both, especially taste, after being considerably acute for several minutes, often seemed suddenly and unaccountably to vanish and no trace of sensation could be observed under very strong stimulus. It would be very interesting to know what sort of a curve of fatigue, if any, such modifications of sensibility follow. It may be analogous to the speedy rigidity of the hand in contact with the cathode when a strong galvanic current is sent through both arms, in Ritter's well-known experiment which Pflüger has so ingeniously explained.

From the above we feel justified in inferring that the lesions of each of the four defective senses were primarily peripheral and so complete that none but taste has essentially contributed in developing her consciousness of the external world, while the functions of the centres, already somewhat unfolded though so slightly localised as they are in children of two years, adapted themselves with less than usual loss of power to their new and unfavourable conditions. The time for such a four-fold affliction was perhaps the most favourable possible. Had it fallen earlier the physiological development of the centres might have been still more dwarfed and the impulse toward mental growth still feebler; had it come later, together with a possible diminution of vicarious and adaptive power, the memory of loss would have perpetually saddened her now exceptionally happy and buoyant spirits, and she would never have been able to forget, as she seems completely to have done, that what others know as a manifold objective world she is doomed to perceive only as a play of shadows across the narrow field of a single sense. The time of her discovery by Dr. Howe and the beginning of her education at the age of eight seem also very opportune. She had had time to recover from her long illness, and to learn much about things concerning which she had already begun to feel a strong and ungratified curiosity.

Her desire at one time to have a mirror in her room, the pleasure she experiences in feeling a little music-box as it plays in her hand, her love of having perfumes and of eating things like certain jellies, farina, &c., which can have little or no taste to her, have been called affectations, but are inevitable results of association with normal people. An *esprit de corps* is as unfortunate among defectives as among prisoners. Among the blind or deaf Laura has had comparatively few acquaintanceships, considering that so much of her life has been passed at an asylum. Only the case of the mirror can be called pure affectation, while even her "taste" of jellies seems largely due to the purely æsthetic feelings of touch in the mouth. Wundt's ingenious theory of facial expression, *viz.*, that it originates in movements calculated to modify vision, smelling, taste, and in part hearing, is not favoured by observations on Laura. True, she does not open the mouth in the ordinary way to indicate great attention or surprise, and the upper part of the face and forehead, as compared with that of most of the blind, is quite immobile; but she can hardly have learned to draw the lips and cheeks toward either side away from the gustatory surface of the edges of the tongue because sour is tasted there. Nor can the mimesis of her nostrils be explained without making large drafts upon the principle of heredity. All the lower part of her face is extremely mobile and expressive, as with most of the blind, in spite of constant effort on the part of her teachers to check unpleasant excesses. Lack of sympathy and cruelty have been observed as frequent characteristics of the deaf, and are no doubt due largely to the fact that human sentiments and all the finer feelings and emotions are mainly conveyed through the voice: no one however can doubt, despite the several instances of cruelty recorded of her childhood, that Laura's nature is unusually sympathetic. She often fails to understand readily the feelings of others, but when they are made clear, the response is far too quick and hearty to be for a moment considered as merely conventional.

Local discriminations through the skin are developed with remarkable and in some respects unprecedented acuteness. Discrimination of peripheral sensibility in a normal person ranges from about 68mm. between the shoulders, to ·0005mm. on the *fovea centralis* of the eye. (If we mentally construe all these forms and degrees of sense into terms of touch, as they may perhaps primitively have been, we shall be able to conceive how great is Laura's disadvantage in communicating with the external world.) Now it is well understood that of Fechner's methods of measuring sensibility that of the *average error* gives the lower, and that of the *just observable difference* gives the upper threshold-value, while that of the *right and wrong cases* gives results which fall near the middle of the thus quite extended threshold. In choosing the second of these methods it is desirable that the series of measurements be a descending one: *i.e.*, the points of the pair of compasses must be gradually approximated till the sensation of two points gives place to that of one. In this way the threshold-value is less than if the series be reversed. Proceeding thus, it was found that Laura was able to distinguish two points at a distance of 0·502mm. on the point of the tongue—an average of twenty-four observations; at a distance of 0·708mm. on the volar side of the end of the right fore-finger—an average of thirty-seven observations; at a distance of 1·2mm. on the inside of the red edge of the lips—an average of eight observations; at a distance of 1·6mm. on the outside of the lips—same number of observations; at a distance of 1·51mm. on the end of the second finger—eight observations; 1·8mm. at the end of the third finger—eight observations; 1·9mm. at the end of the fourth finger. On the upper lip just above the end of the mouth she distinguishes an interval of 3·5mm., at the back of the tongue 4mm., on the forehead between the eyebrows transversely 6·71mm., on the tip of the nose 1·7mm., on the point of the cheek bone 3·04mm., each of the last five measurements being averages of twelve observations made on three different days.

By comparing these results with Weber's tables, it will be seen that tactile sensibility in most of the places measured is from two to three times as great as that of an ordinary person. In making the above observations, however, it must be noted that a strange variation of sensibility was observed, which was so great as to make the preliminary results here given reliable only in proportion to the number of single measurements from which they were averaged. Sometimes, with the utmost apparent straining of attention, the discriminations were less than half as acute as at others. So great is this variability that it is hoped that a curve of fatigue may be obtained by which some approximate comparison with the fatigue-curve of a nerve-muscle preparation may be made. We may already infer however that the exceptional acuteness of this sense, in Laura, is centrally and not peripherally conditioned. It is probably due to the unusual energy with which she has learned to concentrate attention upon the sensations of fingers, tongue, &c. It was often observed that the *Empfindungs-Kreise* were ellipsoidal and not round, the longer axes coinciding with that of the body or limb;[1] and that, when one point of the compasses was rotated about the other, at a distance of only one-sixth that of a diameter of the *Empfindungs-Kreis* within which they were placed, the sensation of motion was distinctly felt. The habitual exploring touch-motions *(prüfende Tastbewegungen)* which, as with most of the blind, are almost irrepressible with her during such experiments, has perhaps made her more sensitive also in this respect than others, although this point has never been investigated. It was very evident, before the writer's observations were interrupted, that there were strange and sometimes abrupt variations from the tactile sensibility of a normal person in certain accessible parts of the skin which were neither scarred, nor ever in any way, so far as could be learned, injured or diseased. These spots are so obtuse in the discrimination of local signs and local colour as to suggest the question whether certain slight twitches often observed in various muscular groups, which according to the radical nomenclature of Hughlings Jackson must be called epileptical, together with certain other almost equally mild hysterical symptoms, may not have had the result which is so common in severe forms of these disorders, *viz.*, partial and more or less distinctly defined dermal anæsthesis. Laura has in the hands and face a sensitiveness to ordinarily imperceptible and sometimes imaginary dust which very closely resembles, save in degree, that described by Charcot and Westphal as one of the characteristic symptoms of incipient mania. Her touch is thus so acute that it is not surprising that she estimates the age of her visitors by feeling the wrinkles about the eyes, and tells the frame of mind of her friends by touching their faces, nearly as accurately as a seeing person could do. From the tonicity of the muscles or the movements of the hand she conjectures the grade of intelligence of her visitors, and long ago learned to detect almost instantly the hand of an idiot by its peculiar flabbiness. She tells readily the time of day by feeling her watch, remembers the hands of her friends for years. A few of the figures of Zoellner and Hering were found to be as deceptive to the touch of the blind when pricked on paper as to vision. It has been said, on the authority of Professor Abbott in *Sight and Touch,* that if a flat surface be pressed with the fingers first gently, then hard, then gently, and again hard, gently, hard, it will seem in the one case convex and in the other

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[1] Czermak's explanation of this general fact, *viz.*, that these sensory domains are round in children and become oval because growth is propor-

tionately greater in length than in circumference, seems partial. Most of our motions both of the body and limbs are in a horizontal plane, *i.e.*, at right angles to the long axis of these domains ; hence that direction grows more sensitive. Moreover, as Horwicz well remarks in commenting on the proven inaccuracy of Vierordt's law, frequency of use is a co-factor with mobility and original nervous structure in determining the sensitiveness of different parts of the body.

concave: this after many attempts the writer was unable to verify with Laura or in a single case with a score or two of the blind.

Her sensitiveness to heat is below the average. She certainly could never distinguish colours by difference in their powers of radiating heat. It has been observed that when seeing people are blindfolded they are able to tell which of five or six familiar and previously named objects is held before the face at a distance of from one to three or four feet. A book, a folded handkerchief, a scrap of sheet-iron and a piece of gauze, *e.g.*, all of about the same surface-measurement, are distinguished in this way, as well as the side of the face towards which they are held, by a friend of the writer almost invariably at a distance of four feet in a darkened room, and with every precaution to avoid giving any clue to the eye or *ear*. Is this due to the modification of half imperceptible sound-waves affecting the tympanum or to changes of thermal radiation from the skin or to modification of atmospheric pressure? Laura has very little of this power, but observations on the deaf have shown that some of them possess it to a great degree. Moreover it should not be forgotten that the ear is a bad judge of direction; hence we must assume that other elements enter in as the data of sensuous judgment in this phenomenon. Only a cursory examination of the dermal sensibility to temperature, pressure and electrical stimulation was made, but this indicated in each of these respects, and especially the last, a degree of sensibility below rather than above the normal. Finally, it may be mentioned that, from a short series of measurements which a lady-attendant kindly consented to take upon parts of the body usually covered by clothing, it would seem that here the discriminating sensibility, though decidedly above the average, is much less so than in the more sensitive parts of the hands and face. In applying the compasses to one arm a concomitant increase of sensitiveness was observed on the corresponding part of the other.

To test the sense of equilibrium, an ordinary swing with a long board, pillowed and provided with a foot-piece, was used, on which she consented to be rotated, lying upon her back, her face and both sides. In each of these positions, after being turned through 180° and then gently placed upon her feet, there was a very evident disturbance of muscular coordination, and she insisted that she was very dizzy. On rotating her through 270°, she was hardly able to stand without support and complained of nausea, describing herself very vividly by gestures and language as seeming to "turn over" in the same plane in which she had been rotated, but in an opposite direction: of the genuineness of these sensations, her ignorance of the object of the experiments and of the normal muscular movements of compensation leaves no reasonable doubt. The dizziness, it was further observed, must be considerable before the power of correct orientation was lost. She was able to tell more correctly than several normal persons who afterwards tried the experiment upon themselves blindfolded, whether she had been turned through half or three quarters of a circle. She was equally sensitive to rotation in a horizontal plane. By so *ex tempore* a method it is of course impossible to exclude, as Mach has at least partially done, the influence of tactile sensations caused by friction, and the process of standing her suddenly upon her feet after every rotation complicates the disturbance: but it is impossible to doubt that she is so extremely sensitive to disturbance of equilibrium, in which both the deaf and the blind are often deficient, as to compel the belief that, upon the hypothesis of Goltz and Mach, her labyrinthine impressions are at least normally acute, and to make a *post mortem* examination of the semi-circular canals with their nerve and its putative centres extremely desirable. She does not appear to be in the least ataxic, but it will be remarkable if touch and muscle-sense have, in addition to all their other vicarious functions, so well learned to discharge those now generally supposed to be due to endolymphic pressure. She can walk alone very nearly in a straight line, and without deviating more often to one side than the other, though always with a hesitating but not unsteady step; she takes long daily walks with her attendant, looks after her own room, goes freely all over a large house, and in any place with which she is familiar knows the points of the compass.

The more strictly organic sensations are not accessible to exact measurement. Even the muscle-sense or feeling of innervation, which even in the case of a normal person and still more in her is so largely instrumental in the work of objective perception and which seems to be so exquisitely delicate in her hands, cannot be directly tested. When told to extend the fore finger and move it as slightly as possible, she makes motions which the eye can but just detect. When the arm or hand is taken and moved through a fixed distance, as an inch or a foot, and she is requested to measure off the distance on a smooth glass rod, she does so with considerable accuracy, although this, like all her similarly indicated estimates of distance, are slightly less than fact. When the compasses are applied to hand, arm, or shoulder-blade, with their points separated in each case about three-times the least discernible distance, and she tries to reproduce these intervals in terms of muscle-sense by measurement on the glass rod, it is found that she invariably judges the greater distances to be proportionally less than the smaller. We cannot infer from this that her notion of the form of her own body is different from the reality on account of the variable discriminative sensibility of the skin. There are very many ways in which this tendency would be corrected in the blind. Yet when asked to make a series of straight marks, *e.g.*, two inches long and two inches apart, the first pair with the hand in the ordinary manner of writing, the next in a constrained position writing on pasteboard pressed against her back and so on alternately,—the marks made in the latter position were found, in an average of over thirty cases, slightly shorter and slightly nearer together. It would be very interesting to compare these results with those obtained with a large number of normal persons. Like many women of somewhat delicate health, she appears very susceptible to other organic sensations, and though subtle inferences might be drawn about semi- or sub-conscious states and processes from her moods which vary considerably, she seems never to have developed, as a late writer asserts is almost inevitable among those whose sphere of objective mental life is abnormally circumscribed, any "liver-consciousness," or "heart-consciousness," or "stomach-consciousness". She has never, so far as is known, shown any special trace of hypochondria or hysteria, or even melancholia, and in everything sexual her education has been so discreet, that the innocence and purity of her thought and life are said by those who know her best to be absolute and even unique. One of the most common notions developed among the blind when they are left much to associate with each other is that they have one real advantage over the seeing in that they are free from all species of optical illusion, and thus, although they know less, their knowledge is more untheoretical and realistic. In this way Laura's is in a double sense realistic and objective. All her knowledge is literally *handgreiflich*. Touch seldom deceives or misinforms and its *rapport* with things is most immediate; hence she clings to all its impressions, even when told they are wrong, with great pertinacity.

The physiological theory of language regards it as originally an immediate motor reflex of sensations perhaps mainly visual, and as being thus a more or less complex series of gestures which soon come to acquire a special auditory significance as a condition of a remarkable subsequent development. Regarding words as gestures, it would once have been comparatively easy to teach Laura by such manipulation of the organs of speech as Graham Bell has applied in teaching the deaf to talk. By this method, with the use of a manipulator, the writer taught her in half an hour to articulate the words "good day" intelligibly, but the next day they were quite forgotten. She is now too old and too adept with the finger-language to make a new method of speech possible. She learned long ago, by feeling the throat and mouth of others and by their help, to pronounce three or four words quite well, and has never forgotten how to say "doctor," "Peter," "money". She has also half a score of "noises," designating persons. These seem to be produced by translating the complex of impressions, or more strictly sensations, which others excite in her into the movement-feeling of 'throat-gestures,' and thus they are very analogous to cases of so called 'indirect onomatopoieses'. Still more interesting however are the instructive and utterly unconscious sounds, which Dr. Lieber took so much pains to investigate, that do not designate objects but express her own feelings. These to the number of nearly thirty the writer attempted, with the kind assistance of Miss Fuller, principal of the Horace Mann school of deaf mutes in Boston, to record by the Bell method of visible speech. They are always accompanied with marked facial and often manual gestures. She thus often expresses feelings which she wishes to conceal, as well as shades of feeling too slight and subtle for the fingers. On being questioned she insisted that she could "*think*" three noises—even a very loud and disagreeable howl of anger which she has been heard to utter but two or three times in her life—without making them, but she could not make them without the feeling. By special request she tried several times with great complacency to make the "angry noise," but in vain. She once said, "When I think of Julia I think her noise and do not think to spell her name". Several of the emotional sounds were made during a dream, the pantomime of which was very expressive as she took her after-dinner nap upon the sofa. She is very positive that her nightly devotions are without vocal or manual signs. The devotions are very regularly performed and the signs, so far as could be learned, have never been observed. These interjectional sounds which her teachers have often striven, but only with partial success, to repress, are not loud or disagreeable, are readily intelligible, and, so far as the data for comparison exists, seem neither to have essentially changed in character or in pantomimic accompaniment, nor to have increased in number for many years. She feels that it is "not lady-like" to make them, and is glad to be corrected, but unless they are quite loud, cannot tell, even if her attention is directed to the matter, whether she really makes a noise, without placing her hand upon her throat. Pressing thus on the throat of several persons successively, she sometimes sportively attempts to imitate their voice with her own in a way which shows that she does distinguish differences of both loudness and pitch (paradoxical as the language may be) without any conception or sensation whatever of sound. That her emotional "noises" have any such philological importance as roots as Dr. Lieber and others have imagined, seems on the whole very doubtful. Aphasic patients sometimes use a set of new and strange sounds as designations of objects or as expressions of passion consistently and without change for years. True, her sounds have not been modified, as are the natural cries of those congenitally deaf but not blind, by imitating the motions of lips and tongue which they see others use: but the fact that she has once spoken is very viciating for such a view. Could however any inference whatever bearing upon this perhaps the most important and most difficult of all psychological questions, be drawn from such facts as the above, it would be that language originated not in the imitation of natural sound nor in the impulse to communicate with others but as a purely physiological reflex excited by the stimulus of outward impressions acting upon or through the senses.

She is not apt, like many defectives, to fall asleep if left alone or unemployed. Her sleep is perhaps lighter and shorter than the average. Several midday naps were observed. She first groped about the room to assure herself that she was alone, then lay down, her face upward and the right or talking hand folded in the other upon her breast. There was at first a slight and regular movement of the chin and toes, while the faint prolonged sound of 'oo' (as in 'fool') often accompanied expiration; slight epileptic twitches several times roused her to quite a pantomime of rapid, troubled and mostly unintelligible gestures; till at length she fell asleep with long, regular breathing, the teeth slightly apart, and the tongue pressed against and almost between them. Just before sleeping, a strong odour of eau-de-cologne and a drop of sugar solution, which she readily perceives when awake, applied respectively to nose and tongue, caused no apparent sensation, while the slight touch of a fine thread upon her face or hand roused her at once. It is possible she directs her attention to the cutaneous sense of these parts, as we often 'set the mind' to wake at a certain strike of the clock; or perhaps this sense is the last to fall asleep. Her sleep seemed almost never untroubled by dreams. Often she would suddenly talk a few words or letters with her fingers, too rapidly to be intelligible, just as others often utter incoherent words or inarticulate sounds. Movements of the lips were also observed, and the emotional expression of her face was constantly varied. She asserts that she dreams much, but finds it very hard to recall her dreams; insists that she has dreamed of hearing with her ears the angels playing in heaven, of seeing the sun so bright that her eyes ached, and of standing in a large place surrounded by many people and seeing God afar off. In relating these dreams her manner is very earnest and intense, but if questioned how the music sounded, how the objects looked, she could give you no more detailed answer than "glorious," "beautiful," &c., and often became quite impatient at the scepticism implied in questioning her closely. She has many times dreamed of being awakened suddenly by animals touching her, or jumping upon her bed. If a normal person dreams in terms of touch, this sense is generally excited only at the end of a series. The dream begins in terms of sight or hearing, and rarely goes so far as contact. The suddenness of so many of Laura's dreams which begin and end in the domain of touch, thus indicates that her dreams are only in its language.

Most dreams are reflex phenomena due to the irritation of sensory nerves. Any or all of the five senses may be excited during the soundest sleep. If attention is directed to the darkest field of vision we can always see the light-chaos or dust *(Eigenlicht)*, or perceive a difference of intensity between the centre and periphery of the field. It would almost seem that modifications of retinal circulation, nutrition, temperature, &c., have a psychical side accessible to self-observation. Goethe could always see streaks of mist; Purkinje saw broad, bending bands, sometimes moving in concentric circles or breaking up into arcs and radii. To J. Müller, these moving spots of mist seemed coloured, they moved about from side to side of the field of vision, gradually took shapes quite disconnected from any objects of recent experience and finally passed into dream-images. Thus, from the nature of the light-chaos, we may account for the reduplication of dream-objects—swarms of birds, flies, stars, kaleidoscopic patterns, &c. H. Meyer and Patterson, on waking suddenly, have seen the after-images of dream-objects slowly fade through complementary colours. We may infer from such facts how strongly the higher centres sometimes react in dreams upon relatively slight stimuli of the lower. Hermann further concluded that those who were blinded by lesions of the peripheral organ gradually lost all distinct visual conception, first from the waking and later from the sleeping consciousness. Laura never has been and can probably never be taught to observe and note down her dreams with any such precautions as Wundt suggests; but a careful analysis of all dreams which she now remembers, or which others have recorded, yields no good ground for believing that she has ever had any kind of visual or auditory conceptions even while sleeping, when the immediate sensation is a still more minute, though perhaps no less indispensable, element of perception than in the waking state. Even her sexual dreams, there is every reason to believe after the most careful inquiry, have always been very few in number, and of so naïve and unspecific a character that only a psychologist would designate them by that name. Now that she has safely passed the most trying period of womanhood without more instruction on such subjects than was strictly necessary for her health, it seems on the whole not improbable that the strongest of all instincts has in her failed to mature, either in the waking or sleeping consciousness, into any distinct *à priori* notion of the ways and means of its own gratification.

Scherner has propounded the curious and improbable theory that dreams are symbolic of the constitution and functions of different parts of the body. All dreams, he asserts, are reflexes of organic feelings, and their types and genera are determined by the forms and positions of the organs. The intestines, *e.g.*, appear in dreams, "after the ego-power is scattered and dispersed," as streets and canals, the stomach as an enclosed or sequestered village or as a dark room with one or two round windows. The body as a whole is always a building of some sort. He dreamed of two rows of boys in red and white, rushing to fight each other, retreating and fighting again round after round. These are explained as the teeth, the involuntary grinding of which is supposed to have caused the dream. The lungs are objectified as a pair of regularly beating wings in dreams of flying, the heart is a fiery furnace, a stove, the sun, &c. Even colours as of the hair, the blood and bile, are reproduced. Not one of Laura's dreams can be satisfactorily interpreted by any of these rubrics. This test of Scherner's theory is of course not crucial, but if internal organs are ever represented in the consciousness of sleep, and especially if they are archetypal there, we should expect this to be peculiarly so in Laura's case: so that to all the psychological objections to such a theory her dreams add in some degree the force of an experimental refutation.

Wundt holds that all dreams, hallucinations, nocturnal insanities, &c., are automatic excitations of what he assumes as a *sense-surface* in the cortex caused by modifications of its circulation, and that they are thus reflexes, originating in the innervation-centre of the blood-vessels in the medulla. This may be true of many toxics and soporifics, and disorders of the blood-vessels and heart very often accompany or precede mental disease. It is an assured law of psychiatry that every functional or mental disturbance brings about anatomical changes in the brain, and thus dreams may even permanently affect the sanity of waking-hours. Hence, if we admit, upon the uncertain hypothesis of Hughlings Jackson, that the development or nutrition of cortical cells is determined and limited by the course of blood-vessels in the cortex, we should expect that the cells lying nearest them, and which we may fancy to represent the earlier acquisitions, are more immediately affected than those distant three or four removes and representing later acquirements and experiences. If this were true, we ought, according to Wundt, to dream mainly of the experience of childhood, and not of the preceding day, and it would be at least possible that forgotten events of early infancy should be reproduced. Dreaming and waking notions are related as species and genera, or as a more partial to a more perfect function. Attention, to the physiologist, is essentially the expression of an instinct. The mind pushes on from one impression to another by a native spontaneous impulse of growth and development. If we may conceive every thing psychical expressed in terms of inner tension, we may say that the direction and movement of attention is like the successive waking of the different elements of psychical life. In the sleeping consciousness, this process is mainly an automatic and central one. 'Inner work' has brought cells into unstable equilibrium, and excitability very easily becomes excitation. Where the work of repair is not done, the slight stimuli of the sleeping state is not sufficient to rouse them: where it is done, the almost spontaneous activity of rested cells easily raises their processes above the threshold of consciousness. These are of course fresh and healthy morning dreams, while only those cells which had suffered the greatest fatigue, or which, long after the outer senses slept, had been morbidly prevented from restfully sinking below the threshold to the inner work of repair by the persistence of mental after-images of recent events, may be said still to wake. Now in the waking state the activity of the senses brings to bear an environment with which the normal action of the centres, if acting only by their own law of rest and fatigue, is more or less inconsonant. Not only can attention not always be accommodated to its object beforehand, but certain centres are disproportionately exercised. In sleep all the centres have a greater degree of physiological freedom. Possibly Laura vaguely strove to express this distinction in a line of one of her so-called "poems," *viz.*:—"A good sleep is a white curtain, a bad sleep is a black curtain". All the intellectual work she has ever known has been scarcely more than the exercise of what Mr. Spencer calls the *play-instinct*. What she has done has been spontaneous. The sudden arrest of peripheral activities of the higher senses, leaving their centres under conditions which perhaps kept them exceptionally unatrophied, may have raised the level of cell-equilibrium, so that she both wakes and sleeps on a higher plane of cerebral rest and nutrition. This at any rate is not inaccordant with the remark of the physiologist Burdach, who, in comparing the accounts of ten blind and deaf mutes, argued that Laura's remarkable understanding was due to "the creative elaboration of impressions unprecedentedly limited in variety".

To distinguish what was native from what was adventitious in Laura's moral, and especially in her religious, development was one of Dr. Howe's chief interests. He had no Rousseau-like expectation that perfect goodness would result from her unprecedented isolation; still less had he any wish, as was sometimes fanatically urged against his method, to retard the unfolding of her mind in either of those directions. He only required her teachers to refer Laura to him for answers to her occasional questions upon these subjects, and sought in every way to shield her from dogmatic indoctrination. The early record of her fresh and original intuitions, of her curious approaches to questions regarding the nature and necessity of a First Cause, of the unaccountable development of her conscience, all so essentially correct yet so unconventional, excited great interest at a time and among people where the central question of theology and philosophy was to determine what factors of consciousness were due to experience and what were *à priori* or intuitive. About 1845, soon after his return from some months' sojourn in Europe, Dr. Howe was quite disheartened to find the mind which he had laboured so long and devotedly to develop in the way which he believed to be at the same time best for it and most instructive to the world, cobwebbed with the barren formulæ and conventionalised by the shallow sentiments of one of the popular orthodoxies of the day. "I hardly recognised," he said, "the Laura I had known." We should not be greatly surprised if his interest in her became gradually less as she fell more under the influence of her new spiritual guides, and thus grew month by month less original and less interesting. Nothing can exceed the crudeness of the Bible translated into terms of her one sense of touch. "Is not the Lamb of God grown to a sheep yet?" "Will Jesus carry us in His arms so?" (with the gesture of a mother embracing her child). "Was not Thomas right wanting to feel the wounds of the spear?" These and many other similar questions are on record, attesting at the same time her native curiosity and the poverty of her conceptions. It would seem, as far as can be learned, that since the time of her conversion and admission with immersion into the Baptist Church her disposition has grown sweeter and her temper more uniform. But when one takes the trouble to enumerate the facts of the New Testament and the cardinal Christian doctrines with their standard forms of illustration, of which she can have even no childish conception, it is seen how minimal the intellectual element of faith may be;

while if, on the other hand, with Schleiermacher, we consider the essence of Christianity to be the formulation of the instinct of dependence so unprecedentedly strong both by nature and education in her, we shall possibly wonder less that so many of her friends have found edification in her numerous conversations and letters concerning her religious experience and belief.

The above is very far from exhausting even in epitome the interesting points suggested by the study of this remarkable case. Laura has very little idea of the interest she has excited in the world; is intensely delighted to see her friends, or to receive any little attention or remembrance from them; and is so good-hearted that the writer is pleased to state in closing that, in spite of the weeks of annoyance to which his experiments subjected her, she was always cheerfully ready at the appointed time, and still cherishes only the kindliest sentiments towards her tormentor.

G. STANLEY HALL.

NOTE.—A question of great interest, suggested by the Editor with reference to a note in Whateley's *Logic*, is how far has Laura been able with the help of her means of expression to form concepts proper, and how far her thinking is able to proceed without the help of her manual marks and signs. Whateley's statement (foot-note to Introduction, § 5) that slight and unintelligible motion of the fingers can generally be observed when she is musing by herself, is not in accordance with the writer's observation. She often sits alone apparently absorbed in thought and reflecting her emotions in smiles, frowns, &c., and with no movement whatever of the hand, although the latter is sometimes observed. If we consider that all impressions above those of touch, which others apprehend in the form of sensuous images must be thought by her, if at all, as general conceptions, it seems probable that her thinking does range beyond the individual objects of *her* sense without finding signs necessary as instruments of thought. This conjecture is strengthened by the general intelligence which appears to have characterised her childhood before her education began.

G. S. H.

II.—HARMONY OF COLOURS.

IN an acute and interesting article "On Discord," published by Mr. Edmund Gurney in the last number of this Review, there are one or two very sensible remarks on the difficulty of reducing the effects of colours in combination to simple physiological and psychological laws. These difficulties, as Mr. Gurney observes, "are almost enough to make one despair of anything like an exact and complete *rationale* of colour-discords and affinities". Mr. Gurney is here only concerned with the obstacles in the way of interpreting the facts: he does not touch on a more fundamental difficulty still, that of ascertaining the facts themselves. When this is taken into account as well, when the chaotic state of opinion as to what combinations of colour are harmonious or discordant is fully recognised, it seems as if we might safely dispense with the precaution which Mr. Gurney takes in introducing the little adverb "almost".

If, then, anything further is attempted by way of accounting for the agreeable and disagreeable effects of combined colours, it must be done in a very different spirit from that of most past theorists. It has commonly been assumed that there is a close parallel between colour and tone harmony. But while the physiology of the ear has supplied a firm basis for musical science, the physiology of the eye has so far done little to support any definite principles of colour-combination. As Helmholtz, the great authority in both branches of physiology, reminds us, "it would be absurd to attempt so sharp a definition in respect of the so-called harmony of colours as we are able to attain in dealing with musical intervals".[1] The object of the present paper will be mainly to emphasise this truth by examining into the facts at our disposal, and by criticising the leading theories put forward. At the same time an attempt will be made to indicate roughly how much physiology and psychology can do for our seemingly impenetrable subject.

To begin with the facts, a slight acquaintance with the arts of music and painting will show that in the latter there are no simple uniformities of combination answering to the fixed and definite relations holding between tones. In all known systems of music,[2] an octave or a fifth is recognised as consonant, a semi-tone or a major seventh as dissonant. But where are the chromatic intervals corresponding to these? Let the reader spend an hour in studying the illustrations of decorative colouring given by Mr. Owen Jones in his *Grammar of Ornament*, and he will be convinced of the truth of the observation. He will certainly be struck by the great diversity of taste shown by different peoples, both as to the relative value of single colours and as to the best order of arrangement. Thus, for example, the combination of blue and green, which is wholly eschewed in some styles, seems to be almost a favourite arrangement in Persian art (tile-patterns). A similar diversity of taste is discoverable among individual colourists. And if this want of agreement is conspicuous in art, it is still more prominent in common life. Witness the endless discussions which are carried on among women as to what is correct in the way of colour-arrangements in dress and in furniture.

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[1] *Physiologische Optik*, p. 270.

[2] Of course, I refer here only to the music of the West in which discrete tones are employed.

Where practice is so diversified we may expect rules to be conflicting, and this is what we find. Works of practical instruction in painting afford a curious illustration of this want of uniformity. For example, the juxtaposition of blue and green, which is often condemned by teachers of art, is called by Mr. Ruskin one of the loveliest combinations the eye ever meets with.[1] Again, red and green, though commonly allowed to be good, are called an inferior combination by Sir J. G. Wilkinson. Still more oddly, complementary colours, though often said to be the most pleasing combination, are excluded from all art by a German writer (Schiffermüller) as crude and boorish.

Is there, then, beneath all this diversity any real agreement, and if so, to what does this amount? In order to ascertain this, it is necessary to make a wide and careful survey of different branches of art, more especially the decorative arts (mural painting, ceramic colouring, glass-staining, &c.), which are not restricted like imitative painting by the facts of nature, nor controlled like dress by extra-æsthetic influences.

In making this examination it is to be borne in mind that the properly chromatic relations of colours can only be certainly ascertained when these are taken in fairly equal degrees of brightness. If one colour is much darker than the other the combination may please through the contrast of light and dark, even though the colours do not combine well. Again it is to be remembered that the presence of a third colour, including black and white, materially affects the apparent degree of affinity of two colours. Thus, for example, green and blue seem to be reconciled when opposed to a large mass of warm colour.[2]

Proceeding in this way, one will find that the amount of agreement actually demonstrable is exceedingly small. First of all it will be observed with reference to binary combinations that all the most distinctly marked colours, namely, red, yellow, green and blue, may occasionally be seen in juxtaposition, though certain combinations undoubtedly appear much more frequently than others (as, for instance, blue and red more often than blue and green). It is to be added that the combinations of colours which seem to be most popular include both wide and narrow intervals in the spectrum-circle.[1] On the other hand, certain combinations of intermediate hues as, for example, spectrum-red and purple-red, yellow and sap-green, appear never or only very rarely.

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[1] It is only fair to add that Mr. Ruskin is here speaking of colours in nature where effects of lustre, &c., are apt slightly to disguise the relations of colour. But this does not detract from the value of the observation.

[2] It may be added that when a colour serves as a narrow border to a large area of some other colour the relations of the two cannot be so well ascertained as when both colours have a considerable area of their own.

If, again, we inquire into the principles which regulate larger combinations of colours, as triads, &c., the utmost that is clearly ascertainable is that certain groupings present themselves much more frequently than others. Thus, for example, it seems tolerably certain that there is a general preference for the "primaries," according to painters, namely, red, yellow and blue, above *most* other triple combinations,[2] though it is not at all clear that they stand alone in this respect, since the combinations red, green and yellow, orange, green and violet, appear frequently enough to deserve the name of favourite triads.

Such are some of the principal agreements, or more correctly approximate agreements, which are discoverable by means of a careful inspection of art-usage. I purposely abstain from entering into the still more difficult question what changes with respect to colour-combination appear to attend the gradual development of the colour-arts. In order to get at uniformities, we must have no prejudice in favour of primitive or of advanced art. It might perhaps be thought that the simple facts of colour-sensibility would be best reached by confining ourselves to the lowest stages of art. But we must not assume that in early art there is a truer appreciation of chromatic harmony than in later art.[3] In truth, if we must choose between simple and highly developed art, it would surely be more reasonable to argue that the feeling for colour-affinity being a finer sensibility than the feeling for mere colour and its varieties, would show itself most plainly in the higher stages of art-progress. But for our present purpose it will be best to treat the question of colour-harmony as far as possible apart from the development of art.

So much as to the facts, and now as to the methods of interpretation proposed. First a word may be said of the crude theory put forward by writers on colour that all combinations of colour should be based on the three so-called "primaries" (red, yellow and blue) as the normal or at least most natural arrangement. This theory is a hasty attempt to find a scientific foundation for artistic rules in physical facts. It fails because it assumes that the laws of the action of light on the retina can be gathered from the laws of combining pigments. All students of optics now know that, when we are speaking of coloured light, yellow is no primary at all,[1] and that the production of a green pigment by mixing blue and yellow pigments is not simply due to an addition of blue and yellow rays, but involves a diminution of these rays consequent on the combination of different processes of absorption. For the rest, as has been observed, the doctrine of the superior value of the primaries does not appear to be borne out by the facts.

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[1] By the spectrum-circle is meant the circle that would be formed by uniting the extremities of the spectrum-scale, with the addition of the colour (purple) formed by combining the extreme rays.

[2] Instead of spectrum-red (vermilion), purple may be employed, as in several pictures by Paolo Veronese.

[3] As is done by Mr. Owen Jones and Sir J. G. Wilkinson when they place early art above later because of its preference for "primaries" (red, yellow and blue) to secondaries and tertiaries. It does not even follow that early artists did prefer the primaries *as colours*, since they may have used them because as pigments they were the most manageable.

A more genuinely scientific attempt to found a theory of colour-harmony on physical facts is made by those who follow Newton in dividing the colours of the spectrum after the manner of a musical octave according to the numerical ratios of their underlying vibrations. One of the most recent exponents of this musical theory of colour is Unger.[2] This writer seeks most elaborately to prove that the best chromatic intervals answer to the best tonic intervals; *e.g.*, red-blue or orange-violet answers to the fifth. He also attempts to construct major and minor colour-harmonies, and even a system of transient colour-discords. Unger's method is singularly ingenious, but far from convincing. The latest authorities in physical optics, as Helmholtz and Brücke, agree that the spectrum cannot without forcing the facts be resolved into an octave.[3] For the rest Unger's illustrations of his theory from the history of art really prove nothing except that almost every conceivable combination of colours is to be met with in the works of the masters.

Even were there not these objections to the comparison of the spectrum with the musical scale for the purpose of discovering some definite laws of colour-concord, such a comparison would in the present state of our knowledge be useless. The discoveries of Helmholtz in physiological acoustics go to establish the conclusion that musical harmony does not directly depend on the numerical ratios of the vibrations of the notes combining, but on the absence of beats between these notes and between their several partial tones. Hence it is vain to make out that colours which harmonise well stand in a simple ratio to one another in respect of their vibrations, unless it can be proved further that these ratios involve the absence of disturbing elements corresponding to the beats of discordant notes; and physical optics does not, I believe, suggest the presence of any such elements.

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[1] Professor Maxwell has fully exposed the pretensions of yellow to be considered a primary element of colour. See a paper "On the theory of Compound Colours," in *Philosophical Transactions*, 1860, pp. 77, 78.

[2] See the full statement of his theory in his work *Die bildende Kunst.*

[3] See Helmholtz's able critique of Newton's theory in *Physiologische Optik*, pp. 236-7; also Brücke, *Die Physiologie der Farben*, Introduction, pp. 5 and 6.

But if the physics of light and of sound fails to help us in drawing an analogy between the effects of colour and tone combinations, may we not call in the aid of the physiology of the two organs concerned? With respect to the eye, recent research has taught us a good deal concerning the nervous conditions of colour-impression. We may provisionally adopt the hypothesis of Young and Helmholtz that all our impressions of colour are built up out of three elementary sensations (red, green and blue or violet) which correspond to the excitations of three specifically different classes of nerve-fibres. We may further suppose that these three classes of fibres are equally distributed over the retina.[1] Once more we may assume that the effects of colour-combination are capable of being produced by the stimulation of different areas of the retina. That is to say, the eye must be supposed to appreciate two colours in juxtaposition to some extent at least without moving from one to the other, and by simply fixating the common boundary of the two colours. This assumption, which seems to be required by the facts, does not, however, preclude the supposition that the pleasing or disagreeble relation of two colours is much more vividly felt when the eye fixates each colour in succession, or in other words when each colour successively stimulates the region of the yellow spot.[2]

Let us now see whether these considerations enable us to trace an analogy between the effects of colour and tone concord. It may be said that Helmholtz's doctrine of musical harmony refers this phenomenon to a positive as well as a negative condition, namely, the presence of certain common elements (the upper or partial tones) in the combining tones. Similarly, if we adopt Young and Helmholtz's hypothesis, it follows that in the case of colours lying near one another in the spectrum-circle, there is a distinct common element, namely, the sensation answering to the fibres excited in each of these cases. If then we say that all colour-concord holds between adjacent colours, and conversely, that all adjacent colours harmonise, we seem to have a theory of colour-concord analogous to that of tone-concord.

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[1] This is not exactly true as the observations of Purkinje and others shew.

[2] Since the comparison of two colours with a view to appreciating their affinity by the eye at rest is only exact in the case of contiguous colours, and becomes very imperfect when there is any considerable space between the colours, we might perhaps hypothetically assume that there is a sympathetic relation between the nervous elements of contiguous regions of the retina, owing to which the excitation of one central region affects in a much lesser degree the closely adjacent regions and in the same manner.

Such a theory, however, would first of all be clearly opposed to the facts, since as we have seen, many harmonious intervals are wide ones, while on the other hand some adjacent colours are distinctly unpopular combinations. But even if the theory tallied with the facts it would not bear close inspection. Helmholtz's theory of three classes of optic fibres teaches that each of these is stimulated to some extent by all ordinary impressions of colour, so that, according to the supposition we are now considering, the specific feeling of harmony ought to be an accompaniment of every possible combination of colours. This is surely a sufficient *reductio ad absurdum* of the hypothesis.

But besides all this, it is plain that the nervous and mental processes involved in perceiving a combination of tones and of colours are too unlike to allow of our drawing any close analogy between their accompanying feelings. Two complete musical tones or clangs never fuse into one indivisible tone, and the feeling of harmony arises just because these constituents, though appearing in some strange way to join in one mass of sensation, do not (as in the case of the partial tones of a single note) wholly sink their individual existence. But two impressions of colour, if they fall simultaneously on the same part of the retina, blend inseparably in one apparently simple sensation.[1] Thus yellow is supposed to be the sensation produced by stimulating the two sets of fibres corresponding to green and to red on the same retinal area. On the other hand, the so-called effect of colour-harmony is produced when the two impressions fall on different retinal areas and, unlike two tones of a musical chord, remain sharply separated from one another.

There is, indeed, one class of these effects of combined colours which may be said to bear a close resemblance to musical harmonies. I refer to the case in which colours are presented in such small masses that they partially lose their individual character and blend in a compound colour. An illustration of this effect may be found by looking over the column of warm light cast by a setting sun on the gently undulating surface of a summer sea. The alternate strips which reflect the rosy light and which are shaded by the soft undulations of the surface appear to blend, especially if the eye is partially closed, and the effect, on the present writer's feeling at least, is closely akin to that of a musical accord. Another familiar example of this phenomenon may be met with in certain wall-papers, where the colour of the small patches of the pattern runs, so to speak, over the colour of the ground.[1] Persian shawls owe some of their agreeable character to this circumstance of partial blending. This effect is plainly due to a compounding of the impressions produced by the two contiguous colours, whether these impressions are supposed to fall on contiguous areas of the retina, or on the same area (the yellow spot) as the eye involuntarily passes from one to the other.[2] It is plain that the two colours which are in this way to blend in part must not be complementary colours, since in this case the composition of the two impressions would result in white and not in a third "colour" in the narrow sense of the word.[3]

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[1] This coalescence has been asserted by Dove and others to take place even between the impressions of "corresponding" areas of the two retinas. See Helmholtz, *Physiologische Optik* pp. 776, *et seq.*

There is little doubt in my mind that this effect of partial coalescence of colour-impressions enters into the effects of art much more than is generally supposed. The peculiar charm of graduated tint may in part be due to this tendency to fuse small contiguous masses of colour, for it is hardly possible in looking at the colours of the spectrum to help imagining that the related tints do actually commingle.[4] Painters are very fond of judging of the effects of colour in combination by half closing the eye and so obliterating the sharp demarcations of the contiguous tints. It seems likely then that some of the most delicious effects of colour in combination, as for example those of the finely modulated pictures of Mr. Burne Jones, involve this partial blending of individual tints.

Yet while attaching much weight to this greatly overlooked effect, I cannot claim for it the rank of the central and essential fact in colour-combination. After all, in most cases, colours are to be seen as perfectly detached from one another. And since combinations of colours, when so detached, are sometimes called harmonious, it follows that such blending does not adequately account for the effects of colour-concord.

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[1] I lately bought a bed-room paper having a small scarlet pattern on a light buff ground. When looked at closely in a small piece in the decorator's shop the colours remained distinct, but when the paper was put up they seemed to blend as an orange tint which was much too fiery-looking for a room with a south aspect.

[2] If the latter it must be that the first impression remains as a positive after-image or ocular spectrum during the excitation of the second sensation.

[3] I find that for some reason reds suffuse themselves in this way over other colours, as blues, greys, &c., with special readiness. This may be due to the greater energy of the impression in the case of the red rays, and the consequent greater persistence of the after-image.

[4] According to this supposition any given tint may be viewed as the impression resulting from the harmonious combination of the adjacent tints on both sides.

So much for the theory that chromatic harmony rests on a similar basis to that of musical harmony. Let us now glance at the second order of attempts to place the theory of chromatic combination on a physiological basis, namely those which set out from the phenomena of complementary colours. The disposition of the retina, after any impression of colour, to see its complementary hue as observed in the phenomena of complementary images, and in the mutual influences of contrasted colours in juxtaposition near their common boundary, was made use of by Goethe in his celebrated doctrine of colour *(Farbenlehre)* in accounting for the æsthetic value of combinations of colour. He expressed the fact by saying that "every single colour excites by a specific sensation the tendency to universality," whence the peculiar value of complementary colours, and of the whole scale of colours as seen in the spectrum. Much the same idea is worked out by Schopenhauer in his curious essay on Colours *(Ueber die Farben)*. This writer looks on colours as the result of a qualitative partition of the activity of the retina, and regards the addition of the complementary hue to a given colour as the perfection of this activity. The fact that colours in juxtaposition tend under certain circumstances to influence one another so as to assume the appearance of complementary hues, was taken by Chevreul as the key to the true laws of chromatic harmony. Chevreul appears to have exaggerated the importance of the facts relating to the mutual modification of colours in juxtaposition. Such influences are very limited, and it is quite conjectural to suppose that contiguous colours *always* produce an appreciable modification of hue, through a calling-up of a negative image or contrast. Indeed this idea seems to be clearly contradicted by the simple fact that blue and red have their peculiar force of colour augmented by juxtaposition, whereas, if negative images were formed, the blue would lose its blueness and look greenish, and similarly the red would suffer and approach yellow. His harmony is, in fact, as he himself explicitly states, the combination of contrasts. Once more, Zimmermann in his *Allgemeine Æsthetik* regards the complementary image as a necessary concomitant of a colour and even as an essential element of the impression, and by help of this assumption seeks to institute an analogy between the effect of two complementary colours, of which each is thus in a sense contained in the other, and that of two musical tones, say those of an octave of which the higher is already present in the lower.[1] This same idea of a complementary activity of the retina is made the basis of a theory of colour-harmony by E. Hering. It is also regarded as the fundamental fact by Mr. Grant Allen in his *Physiological Æsthetics.*

That complementary colours have a special æsthetic value seems indisputable in spite of the attempts of some to disparage these combinations.[2] Since on Young's hypothesis a complementary colour is one which brings into action that order or those orders of nervous fibre which the original colour leaves comparatively quiescent, it is certain, as will be seen by-and-by, that the juxtaposition of the two, whether they fall on the same retinal area in succession, or simultaneously on contiguous regions sympathetically related, must have a certain fresh and stimulating as well as a full and satisfying character for the eye. This latter effect, it is obvious, should be obtained just as well by a further subdivision of the colours, for example, of blue and orange into blue, green and red, (the red being made much more powerful than the green).

There is, however, great indefiniteness in this notion of complete retinal activity. At first sight it would appear, when translated into terms of Young's hypothesis, to involve an equal excitation of all classes of fibres diffused over the retina. But this is obviously impossible except by means of a very large white surface. It would be absurd to contend that two considerable areas of colour in juxtaposition are each perceived in succession by the whole of the retinal surface. Further, it cannot, as we have before remarked, be argued that two contiguous hues are always perceived by the same part of the retinal surface, and hence the fact that two considerable patches of colour in juxtaposition are pleasing even when the eye is most at rest, seems to show that a heterogeneous and partial qualitative activity of *different* regions of the retina has this satisfying character just as much as the complete activity of any given area.

There is another objection to the erection of the complementary relation into a precise scientific principle of chromatic combination. Two complementary coloured lights are such as being combined produce the sensation of whiteness. But in order that they may produce this effect their *quantities* must have a certain proportion. If the one is much more powerful than the other, the result of combining them is not white but a whitish variety of the colour in excess. Now complementary colours in art are supposed by the advocates of this principle to be harmonious in an endless variety of proportion, whether the quantity of each light be measured by the area reflecting it or by its brightness. This shows that the eye is not, as some interpreters of complementary hues appear to teach, always seeking to realise a sort of unconscious perception of whiteness. The idea that complementary colours are synonymous with harmonious colours, evidently implies that colours lying near one another in the spectrum-circle are always discordant. This is not correct, since, as we have seen, closely related tints frequently combine with great effect. On the other hand, it is undoubtedly true that the most plainly and incontestably discordant effects of colour take place when the combining colours are thus related. So far as I can make out, the only instance of what is generally felt to be real chromatic dissonance is where one colour is visibly injured or improverished by another, and this only happens when the colours lie near one another in the spectrum-circle. In dealing with this class of cases we shall, I think, exhaust all the truth that resides in the complementary theory, and at the same time dispose of all the points of resemblance between colour and tone harmony.

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[1] It is not of course accurate to speak of the complementary image being "contained in" an impression of colour. Strictly speaking it is the result of a second stimulation, objective or subjective, acting on relatively vigorous and consequently highly susceptible elements.

[2] Brücke describes a method by which he secured a series of impressions of perfectly complementary hues, and tells us that in every case the combination was pleasing (*Die Physiologie der Farben*, pp. 35, ff.; *cf.* pp. 204, 205).

It is important to state that the effects now considered arise when the colours are produced by reflecting surfaces and not by the direct rays of the sun. There is good reason to suppose that the spectrum-rays, however combined, would not give rise to this unpleasant effect. It occurs frequently in juxtapositions of coloured fabrics, as for example, a scarlet shawl worn on a purple dress, or a blue shawl on a violet dress. It may be easily produced by combining tinted papers such as are used by bookbinders. Thus a strip of chocolate brown paper if placed beside a bright pink strip seems to loose all its colour. In this way certain scarlets are apt to look bricky if placed by rose-red, and some yellows lose their force by the side of warmer tints.[1]

It is possible that these effects are to be accounted for on the same principle as the mutually reinforcing influence of complementary colours, namely the exhausting effect of light-stimulation. The colour which is injured or "killed" commonly contains some element conspicuous in the other though in a much feebler degree. The eye feels this element to be taken out of the second colour and is consequently dissatisfied. What remains is either a faint and unsatisfying element of another colour (as when a gamboge yellow looks pale and greenish against a warmer colour), or an approximation to a dingy colourless grey (as when chocolate brown is killed by pink).

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[1] So far as I can ascertain, one of the two colours always suffers more than the other, though in some cases there seems to be a mutually destructive effect.

Again the fact that this effect of impoverishment seems to be confined to the colours of surfaces suggests the reflection that it is frequently due to the impurity of the colour which suffers, that is to say, to an admixture of other elements (faint white light in the form of grey, &c.). It is certain at least that the poorer and the less pure a colour when viewed apart, the more easily will it be killed when placed beside a rich and purer colour.

Now after we have frequently experienced this injurious effect we regard any new juxtaposition of colours in order to see whether they detract from one another's peculiar excellence; and when they do not, we are disposed to call them harmonious. This idea is certainly one, and perhaps the commonest, meaning of the phrase "harmony of colours".

Yet this fact of not injuring one another's characteristic quality does not exhaust the meaning of the term colour-harmony. In truth it looks as if writers on colour had been led astray by the associations of the word harmony. They have assumed that colour-harmony like tone-harmony must repose on some specific sensation. But the word harmony in many other connexions evidently means much the same as affinity, resemblance, or unity.[1] When for example we speak of an action harmonising with our idea of a person's character, we mean simply that it resembles in its nature and motives previously observed moral qualities. Now in the same way it may be said that much of what is meant by harmony in colour is some aspect of likeness consciously felt. In other words, the beauty of colours in combination may rest to a large extent on a conscious process of comparison, and involve a distinct perception of relation. In this sense harmony is the opposite of contrast, and can only be studied in connexion with this. I purpose devoting the rest of this paper to a brief consideration of the several ways in which the complementary æsthetic principles of harmony and contrast manifest themselves in the pleasing effects of colour in combination.

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[1] Strictly speaking, the word harmony points rather to a subjective emotion, to the peaceful feeling of satisfaction which results from the perception of a certain objective correspondence, unity, or resemblance. I conceive that the words harmony and unity or uniformity in diversity, when employed in art, express but two aspects of the same fact, namely, an emotional and an intellectual aspect.

First of all, then, it will be well to enumerate the several distinguishable qualities or aspects of colour which serve as the terms of the relations of contrast and similarity. Some of these are fixed characteristics for each of the individual colours, others vary in the case of each colour.

Of the fixed aspects the most obvious is the chromatic quality itself. In order to estimate the affinities of colours viewed as impressions consciously compared, it seems necessary to set out with four fundamentally distinct colours, namely, red, yellow, green, and blue.[1] No one of these is felt as related to the others by resemblance, while all intermediate colours, as orange or blue-green, are immediately perceived to be transitions from some of these seemingly elementary impressions to others. The affinity between one of these intermediate tints and either of the adjacent elements, may be called of the first degree. On the other hand, the relation holding between any two elementary colours lying next one another in the spectrum-circle may be styled the second degree of affinity. This second degree does not involve similarity like the first, but simply expresses the fact that we may pass from one to the other by insensible intervals without introducing a third element.

Not only have the several colours their specific colour-quality, they manifest other similarities which appear to fall into a regular scale. It is noticeable that there is no scale of height in colour as fixed by the rapidity of vibrations of the several hues, and corresponding to the scale of mere pitch in music. The "lowest" note in the colour-scale, red, is more analogous in its effect to the higher musical notes. There seems to be a fairly even decline in respect of energy of sensation. Red is violent; yellow though brighter is less exciting; green is still less stimulating, while blue is the colour which best suggests repose. Of course these characters are greatly modified by variations in brightness or intensity. They apply to the average tones of these colours, and also to their spectrum-intensities.

Closely corresponding to this gradation in stimulative energy, is the division of colours into warm and cold hues. There is clearly a maximum of warmth in spectrum-red and a gradual falling-off through orange and yellow to green. But green and blue are generally treated as pretty equal in their coldness, if indeed green is not the colder of the two, as many artists suppose. The shading-off of blue into violet, again, is a clear return to the warm extremity of the scale.

Other peculiarities of the several colours may be found, some of which fall, like the above, into something of a general scale, as advancing and retiring colours, while others are confined to single colours, as the particular attractiveness which Goethe attributes to blue, the colour that woos us on by seeming to fly from us. But most attempts to define exhaustively the characteristic effects of the individual colours seem to involve arbitrary distinctions.[1]

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[1] I cannot assign any reason why this subjective scale differs from Young's objective scale by the addition of the fourth element, yellow.

Let us now pass to those aspects of colours which vary in the case of a given individual tint. First of all there is the intensity or brightness of a colour which answers to strength of sensation and degree of stimulation. Opposed to this is darkness of hue, which is connected with feebleness of stimulation, and which in its lowest degrees is known as blackness. Each of these extremes has its characteristic emotional effect, brightness of colour being exciting and gladdening, while darkness of tint has a certain quieting and solemnising influence.[2]

Next to the aspect of brightness or darkness of a colour comes what is known as its degree of saturation or colour-force. It is known that even spectrum-colours are not perfectly pure from an admixture of white light, which tends to weaken their colour-force.[3] In the case of coloured surfaces the admixture of white light tends to make the colour pale. The more saturated a colour the fuller its force as colour, the less saturated it is the nearer does it approach in its character to white. The two extremes of vivid colour and white are marked by a characteristic emotional effect. Colour is more sensuous, more voluptuous, produces a more voluminous mass of pleasurable feeling: white is less exciting and more serene.

In the case of coloured surfaces a colour may be made less saturated by being "broken" or mixed with neutral grey, which answers to a feeble quantity of white light. In this way the voluptuous colour-effect may be toned down. The extreme supplied by grey is a much quieter impression than white, and has something like a touch of sadness in it. Hence grey serves by contrast to bring out the rich voluptuous effect of colour still more powerfully than white, and in the case of all bright colours emphasises their brilliance as well. Of course the shade of grey may vary from something indistinguishable from white to perfect black. Every colour, however pure, tends, when it reaches a certain degree of feebleness, to pass into grey and finally into black, as may be seen in the gradual change of nature's tints which accompanies night-fall. Black being the name we give to a surface which reflects the minimum degree of light is equally opposed to white and to colour. It serves to accentuate the brilliance or luminous quality of each.

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[1] See, for example, Wundt's recent attempt to define the characteristic emotional tone of the several colours (*Physiologische Psychologie*, pp. 440-444).

[2] A change in the degree of light-stimulus is sometimes attended with a change in the quality of the colour. Thus red or yellow light when very feeble gives the colour known as brown.

[3] Helmholtz describes a very interesting experiment by which he was able to obtain a colour-impression fuller or more saturated than that of the spectrum (*Physiologische Optik*, p. 370).

Thus every colour presents itself as a triple series of gradations between the extremes of *(a)* bright tone and dark shade, *(b)* saturated colour and white, and *(c)* bright and saturated colour and grey or black. It is plain that these scales supply to any particular colour an indefinite number of distinct aspects, which aspects moreover, being common to all colours, afford points of affinity and contrast among different tints.

Let us now glance briefly at the way in which the principle of contrast enters into the combinations of colour. Contrast is the greatest degree of change or variety of impression, which is known to be a universal condition of art. It is only by change, by passing from one impression to another, that vividness of effect can be maintained, and the greater the degree of unlikeness between two impressions the more vivid the effect. Hence strong contrast is the most potent effect in art. There is no doubt that the æsthetic value of change and contrast rests on simple laws of the nervous system. On the one hand, a uniform unchanging impression tends to lose its effect through a gradual loss of functional vigour in the nervous elements involved. On the other hand, transition from one impression to another unlike this implies the excitation in the second case of elements not engaged in the first, that is to say, of elements with a plentiful store of vigour. Yet these considerations do not exhaust the phenomenon. The value of contrast depends on a consciousness of the relation between the contrasting impressions, and so involves a retention of a fairly vivid idea of the first impression. Thus the effect of contrast may be realised when there is no time for the exhausting effect just spoken of, *e.g.*, in passing from a high to a low tone very rapidly. In the case of colours which persist side by side, the effect of contrast may be instantaneous.

According to the double aspect of change just spoken of as relief after an exhausting impression, and a transition to a more vivid impression, various colours in juxtaposition may be said to relieve and accentuate one another. As the eye passes from one to another and reverses this movement, each element supplies at once a condition of repose and of new and vigorous effect. Yet we may roughly distinguish three cases here. First of all, the contrasting colours may be both stimulating, being approximately equal in intensity or brightness and in extent. In this case which we may call that of equilibrium, and which is best illustrated by a juxtaposition of complementary colours, or colours nearly allied to these, there is the mutual effect of relief and intensification just described. Secondly, the two colours may be very unequal in stimulating force. If the weaker colour occupies the larger space and provides the ground of the brighter colour, as in arrangements of bright warm colours on grey or dark grounds, we have the effect of accentuation. If on the other hand the weaker colour appears as an incidental element in a large mass of bright colour, as in the Chinese and Japanese arrangements where small masses of black are scattered among bright colours, we have rather the effect of momentary relief or repose.

For the rest the pleasure of colour-combination increases according to the amount of discoverable contrast in which each term enhances the value of the other. More especially the characteristic effects of brightness and darkness, the essential element in *chiaroscuro*, and of energetic and restful colour, which again includes the opposition of warm and cold, enter as conspicuous features in the larger number of colour-schemes.

Variety and contrast are of the very soul of the colour-arts. The eye desires change, and the characteristic excellence of any particular colour is only seen when it is placed in surroundings fitted to bring out its specific quality. Just as nature delights the eye by its many variegated tints so the arts of colour seek to gratify it by the greatest possible variety of hue.

Yet change and the unlikeness of contrasting elements are only one desideratum in a combination of colours. There must be unity as well as variety, similarity as well as dissimilarity, supplying the peaceful feeling of harmony. The one principle opposes itself to and limits the other. If there were no unity variety would grow chaotic and confusing, while without variety uniformity would become monotonous. The degree of variety, moreover, is not always the same. Sometimes, where an exhilarating, highly stimulating effect is desired, variety and contrast abound, and the connecting thread of unity becomes faintly discernible. On the other hand, where a more peaceful impression is sought, variety may be reduced to a minimum. Let us see for a moment, in the light of the practice of the best colourists, how the principle of variety and contrast is limited in the case of colours.

In the first place, then, the least conspicuous action of the principle of unity in colours is seen in the preservation of a certain due *proportion* among the elements. One element must not as a rule extrude another or domineer over it so as to destroy its force. This principle clearly embodies the idea of "perfect retinal activity" mentioned above. It furnishes the most abstract rule in colouring, and one which is exceedingly likely to be over-ruled by other principles. In applying it there is commonly a reference to the complete spectrum-scale of colour. This serves as a standard of complete organic unity, and any given scheme of colour is estimated with more or less distinct consciousness in relation to this scale. When all parts of this scale are clearly and adequately represented, the mind of the spectator has a sense of completeness, which feeling may be called an emotion of harmony, since it depends on a perception of a correspondence with a pre-existing mental standard. It is given as a rule of decorative painting by Mr. Owen Jones, that when seen at a certain distance the colours should seem to blend in a kind of neutral bloom.[1] In practice it is of course sufficient that the principal well-marked classes be represented. The favourite triads —red, yellow and blue, orange, green and violet, &c., owe a part of their æsthetic value to this principle of organic completeness. Similarly the value of complementary pairs, of the contrasts of warm and cold tint, and of light and dark, rests in part on this sense of completeness and proportion.

In the second place, colours may be united much more distinctly by help of the principle of *continuity* or *gradation*. It has already been suggested that the charm of gradation rests in part on the effect of blending impressions. In addition to this a gradation of colours pleases by giving us the sense of change in the gentlest possible form. It implies constant change together with the closest possible amount of resemblance short of uniformity. When colours are linked together by intermediate gradations, they are seen to have an affinity, they are recognised as links of one continuous chain. Light and dark *(chiaroscuro)* supply a second mode of gradation, which may with great advantage be combined with that of colour.

A third and yet higher mode of attaining unity among colours is by *subordination*. Ample variety of tint and of emotional tone being secured, the various details are grouped in relation to some central dominant element, sensuous or emotional. This principle is clearly opposed to that of completeness and proportion already spoken of. There are several recognised methods of securing the supremacy of a particular colour or quality of colour. For instance, the ruling feature may occupy by far the larger part of the area of the painting or design, either in a single mass or in a broken chain of smaller areas. Thus a landscape painter who seeks to realise a dominant key of bright gladsome colour may, instead of dividing his picture into two approximately equal masses of light and shade, expand and diffuse the light spaces, keeping the dark masses in strict subordination as an element of contrast and relief only. It may be remarked that the breaking-up of the dominant tint or quality of colour into several divided masses gives to the wandering eye the pleasure of recurrence of the like, a pleasure which is of the very soul of melody. Another mode of giving this supremacy is to assign to the dominant element a particular position, more especially a central one in the coloured space. By this means it will project its image on the most sensitive part of the retina when the eye is at rest, and also tend to arrest and hold the eye as the point of repose after each wandering through the peripheral parts of the surface.

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[1] Mr. Field has worked out in his "Chromatic Equivalents" the ratio both of light-intensity and of surface requisite to this effect.

The fourth and last mode of attaining chromatic unity is that of *assimilation.* When the highest degree of the emotional effect of harmony is desired, the colour-design must exhibit a considerable amount of similarity. In some cases a single uniform tint is esteemed agreeable, as for example, in ladies' dress and in domestic decoration.[1] Here the element of variety is supplied wholly by light and shade as distinguished from colour.[2]

More frequently the design is made up of a few closely related colours with their several tones and shades, as blues and greens, reds and browns, purple-reds and violets, &c. All such combinations of adjacent hues, provided they do not produce the discordant effect noticed above, supply a large amount of the feeling of harmony, since they are related not only in chromatic quality, but in those characters of warmth, strength, &c., or their opposites, already spoken of. A combination of colours may be assimilated in some cases by a process of suffusion, one colour being apparently laid over a number of colours. The only difficulty here is that of preserving something of the individual colours. This is only possible when the dominant and subordinate lights result in a certain colour that has something of the chromatic quality of each, that is to say, when the colours are not separated by a wider interval than that of the second degree of affinity (as red and yellow). The effect of the medium of the air on distant colours illustrates this effect of suffusion, and the same effect is sometimes aimed at in art.

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[1] This fact appears to be overlooked by Mr. Grant Allen *(Physiological Æsthetics)* who seeks to resolve all the disagreeableness of colour-combinations into a fatiguing excitation of one class of nervous elements only.

[2] This is not exactly true, as change in degree of light is, as I have observed, sometimes accompanied by change in the chromatic quality.

The higher degrees of similarity just spoken of are only aimed at when the fullest effect of harmony is desired. More commonly the artist is content to secure a lower degree of harmony by means of some unobtrusive emotional affinity. Thus, for example, a refreshing and serene character belongs to the colour-scheme of certain marine studies with morning light, in which bright tones of green and blue together with white predominate, while all warm and exciting tints are either excluded or reduced to a very inconsiderable element.

There are two methods of bringing colours together by means of some common character which appear to be so well recognised in art as to call for special attention. The first of these is known as breaking or lowering the tone of colours by bringing them nearer a shade of neutral grey (or black). In this way the individual differences of the colours are softened though not altogether lost. Imagination here supplements sense and restores to some extent the half-veiled hues. The most delightful examples of such subdued colours in peaceful harmony may be observed among the tints of sea and sky on a calm cloudy day. The present taste in decorative art and in dress illustrates the quiet harmonious effect of such subdued colours. When the colours are reduced to a very low shade, and made to approach black, we have a peculiar rich emotional effect which appears to involve an energetic action of the imagination.

The second mode of approximating colours to one another is by means of their other common pole, namely, white. To mix white light with coloured, or to make the colours pale and faint, is to bring them together by another link of affinity. Although this kind of harmony is less frequently sought in art than the other, illustrations of it are not wanting. Slight water-colour sketches on white ground appear to owe something of their peculiar charm to this principle, and in certain styles of colouring, *e.g.*, that of the Chinese and Japanese, there seems to be a preference for combinations of pale tints.

Such then are, so far as I can observe, some of the chief modes of supplying the peculiar element of unity, affinity or harmony in combined colours by means of some colour-element. It must not, however, be supposed that this kind of unity is invariably aimed at. As I have already remarked, the artist who seeks to produce a highly stimulating effect will make use of the greatest amount of variety and contrast in colour. In these cases he may be content with giving to his scheme simply the unity which comes of local connexion and symmetrical form. How much of the peculiar effect of colour-harmony will be sought depends on the particular aim of the painter and on his individual feeling.

In closing this slight study of the principles of chromatic combination a word may be said as to the influence of experience and association on the æsthetic effects of colours in juxtaposition. I have refrained from enlarging on this side of the subject here, not because I think it unimportant, but because it seems to me better to study all the elements directly presented to us in art before asking how much is indirectly given us by revivals of past experience, individual or racial. In addition to this I will confess that, with respect to the effects of colour in combination, this line of speculation appears to me to promise but little help. It is easy to trace some of the effects of single colours to this source. Thus bright colour is gladsome in part, because it is associated with all the pleasurable feelings that arise from sunshine and bright surroundings. Again warm energetic colours, no doubt, owe some of their peculiar force on the mind to the fact of their comparative scarcity in the variegated mantle of nature, as well as to association with sensations of bodily warmth, &c. On the other hand, it is not easy to see why, if we refer simply to the arrangements of nature and their action on the visual organism, grass-green and blue should not be reckoned one of the most agreeable of combinations. One or two conjectural explanations might be derived from this source, as, for example, that combinations of closely-related colours are pleasing since they constantly present themselves on the surfaces of natural objects, or that gradation owes something of its æsthetic value to its place in the colour-plan of nature. But such tentative suggestions are very unsatisfactory, while on the other hand, the laws of colour-harmony, so far as any such laws can be said to exist, seem to be pretty fully accounted for by data immediately given us, that is to say, the structural peculiarities of the visual organ and the general laws of nervous stimulation, together with well-known principles of mental action.

JAMES SULLY.

III.—THE STANHOPE DEMONSTRATOR,[1]

AN INSTRUMENT FOR PERFORMING LOGICAL OPERATIONS.

CHARLES third Earl Stanhope[2] is known to science by his mechanical inventions. The works to which he owes his celebrity are chiefly the following:—A printing press and a microscopic lens, both of which bear his name, a method of securing buildings from fire, an arithmetical machine, a monochord for tuning musical instruments, certain improvements in the process of stereotype printing and in the construction of locks for canals, and a steamboat or, as it was described by its inventor, a vessel to sail "without the aid of either wind or tide or oars". But it does not seem to be generally known that the Earl devoted a large portion of his life to the study of Logic, and that he invented an instrument for the mechanical performance of logical operations. In none of the accounts which have appeared of his scientific labours can we find any allusion to his researches on this subject or to the curious contrivance which he called the "Demonstrator". His logical speculations, which employed his thoughts more or less during a period of thirty years, have remained absolutely unpublished and unnoticed down to the present time. This is partly to be accounted for by the fact that the two friends to whom alone he communicated his views were not at liberty to make them known to others. In a letter to the Rev. John North of Ashdon, near Saffron Walden, Essex, written the year before he died,[3] he gives some account of his logical method, and asks him to show the same to "Dr. G.," meaning no doubt Dr. Edmund Goodwyn,[4] but to no one else lest "some bastard imitation" should precede his intended publication on the subject. A work entitled "The Science of Reasoning clearly explained upon new principles," which he left unfinished, bears on its title-page the date 1800. A few of the earlier chapters were printed by the Earl at his own press at Chevening, but the work for the most part is in manuscript, and some portions of it have been written and revised several times.[1] It is occupied chiefly with questions of logical definition and examples of a method of reducing all propositions to one form. The chapters on the ratiocinative part of logic, or that which relates to reasoning, had not been written, and we have to collect the author's views on this branch of the subject from some isolated examples and a few incidental hints.

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[1] The substance of the following article was communicated by the author to Section A of the British Association at the meeting in Dublin, 1878.

[2] Born 3rd August, 1753; died 15th December, 1816.

[3] The letter bears date 15th November, 1815.

[4] Goodwyn, a doctor of medicine at Ashdon, and North were two of Stanhope's executors. There were eight others, *viz.*, Lord Holland; Lord Grantley; Mr. George Dyer, B.A., of 6 Clifford's Inn; Rev. Christopher Wyvill of Burton Hall, near Bedal, Yorkshire; Rev. John Robinson of Halstead, Kent; Joseph Jekyll, Esq., M.P., of New Street, Spring Gardens; Rev. George Gregory, of 10 Chapel Street, Bedford Row; and Mr. David Stone, surgeon, of Brasted, Kent. To his executors he left nearly all his disposable property. Among some of their descendants may perhaps be found letters or manuscripts relating to the subject of this article. The reason why he left nothing to his family, except one thousand pounds to his mother, is thus explained in an obituary notice which appeared in the *Gentleman's Magazine* for 1816, Vol. 86, part 2:—"On his separation from Mr. Pitt his family preferred the patronage of the minister to the paternal

Prof. Jevons, in a paper[2] describing his own logical machine, remarks:—"It is rarely indeed that any invention is made without some anticipation being sooner or later discovered, but up to the present time I am totally unaware of even a single previous attempt to devise or construct a machine which should perform the operations of logical inference; and it is only, I believe, in the satirical writings of Swift that an allusion to an actual reasoning machine is to be found." Now it must be confessed that Earl Stanhope's Demonstrator is much less powerful as a logical instrument than Prof. Jevons's machine, but the former is undoubtedly a distinct "anticipation" of the latter. It is probably the first attempt ever made to solve logical problems by mechanical methods. That it is inferior in range and power to the more recent invention can hardly be matter of surprise. Logical science has made considerable progress since the commencement of the present century. The Aristotelic system has been widened in various directions, and the remarkable analysis of Boole[3] has served to exhibit the laws of thought in logic in a form as rigorous and exact as that of

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roof, and he has frequently been heard to say that as they had chosen to be saddled on the public purse, they must take the consequences. He wished them all to devote themselves as he had himself done to some useful calling, by which, when the fatal day of public calamity, which he imagined he foresaw, came, they might secure independence by their own personal ingenuity and labour. They are therefore not mentioned in the will, but they are all entitled to certain sums by the marriage settlement."

[1] These remains with all letters preserved relating to Logic have been placed in the writer's hands by the present Earl with a view to the publication of this account.

[2] "On the Mechanical Peformance of Logical Inference."—*Philosophical Transactions*, 1870, pp. 497-518.

[3] *An Investigation of the Laws of Thought*, London, 1854.

any department of pure mathematics. Prof. Jevons has attacked the problem of a mechanical logic with all the advantages of these discoveries, and the result is an instrument as incomparably superior to the one I am about to describe as the method of Boole is to the old scholastic system.

It is interesting, however, to observe that in seeking to construct a mechanical method in logic Earl Stanhope was led to anticipate some of the views of modern logicians. Both in his quantification of the predicate and in his solution of problems involving numerically definite propositions, we see the Earl struggling, not unsuccessfully, to escape into some less confined system of logic than that of Aristotle. Indeed it would seem that without some advance on the Aristotelic doctrine a mechanical logic would be impossible.

Earl Stanhope showed little respect for the authority of the ancient logicians. The same reforming zeal which he is well-known to have displayed in politics[1] he exhibited also in his treatment of logic. He brought to the study of the subject a certain independence and originality of thought which led him to examine the foundations of the science for himself. "Logicians in general," he says, "consider propositions as being of four kinds, and they distinguish them by four letters as follows:—

1. Universal affirmative,	The letters by which they denote them are	A
2. Universal negative,		E
3. Particular affirmative,		I
4. Particular negative,		O.

"And they represent syllogisms by means of certain barbarous words (such as *Barbara, Cesare, Darapti,* &c.), which words contain combinations of some of those four letters. I shall reject the whole of this." So elsewhere he says: "I intend to exclude entirely that long *catalogue of pedantic words* which are now used in that complex system for the purpose of drawing consequences, and which render it, generally speaking, both unintelligible to youth and unfit for men of any age, so far at least as relates to convenient and habitual use. My system of logic will, on the contrary, be found to have the striking advantage of uniting simplicity, perspicuity, utility, and perfect correctness." Again:

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[1] At an early period of the French Revolution he openly avowed his sympathy with republican sentiments, and he is even said to have gone so far as to lay aside the external ornaments of the peerage. His advanced views were developed in his "Speeches and Protests before the Electors of Westminster" in 1784, and in his "Reply to Burke on the French Revolution". A curious pamphlet, entitled "Stanhope's Political Opinions," by S. Fletcher, was published shortly after the Earl's decease. Copies of these works are in the British Museum (8132d, $\frac{11039}{4}$ 58, 8135cc).

—"The famous Locke, in his *Essay concerning the Human Understanding* (Volume the Second, Chapter the Seventeenth and Section the Eighth), says, 'It is fit to take notice of one manifest mistake in the *Rules of Syllogism*, *viz.*, that no *Syllogistic Reasoning* can be right and conclusive but what has at least one *general* Proposition'. The natural acuteness of that great man made him perceive the existence of what he terms a '*manifest mistake*'. But not seeing exactly in what consisted that method by means of which that error was to be universally corrected, he leaves the subject without attempting to lay down correct *Rules of Syllogism.* I shall make it my business to supply that defect. And I shall produce such examples, relative to my new system of *Logic*, as will clearly justify the sagacious Locke, in the observation which I have quoted respecting the '*manifest mistake*,' as he sarcastically calls it, of the logicians. There are various other mistakes which they have made which I must rectify. But I shall not stop to correct any of these in detail. For the Science requires to be *totally reformed*."

The materials in our possession do not enable us to give a complete or systematic account of Stanhope's views on logic, nor is that the object of the present paper. What we propose to do is to bring out, so far as we have been able to collect them, those points in his system which may serve to illustrate and explain the working of his Demonstrator. On this subject we find in the Earl's logical remains no full or formal statement, but only scattered and fragmentary hints, and a few very simple examples. It is possible therefore that in the hands of its noble inventor the instrument possessed a range and power somewhat greater than is apparent to us. He attached to it a practical importance; for us it possesses little more than a theoretic or an historic interest. After an allusion to his arithmetical machine,[1] constructed in 1777, the Earl says:—"Another instrument which I have invented, and which is extremely simple in its construction, is contrived in such a manner as to be useful *in discovering Consequences in Logic.* It exhibits the consequences *symbolically*, and renders them evident to the mind. By the aid of this instrument the accuracy or inaccuracy of a conclusion is always shown, and the reason why such consequence must of necessity exist is rendered apparent. As this instrument is so constructed as to assist us in making *demonstrations*, I have termed it the DEMONSTRATOR. This same instrument is so peculiarly contrived as likewise to exhibit symbolically those proportions or degrees of probability which it is the object of the LOGIC OF PROBABILITY to discover." Speaking elsewhere of his one universal rule of mediate inference, he exclaims: "Behold, then, the luminous perspicuity and most beautiful simplicity of this new system of logic!"

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[1] Four of these machines are in existence; one is in the hands of the present Earl, two others, of like construction, have come into the possession of General Babbage, and the fourth, a much smaller and less effective instrument, is at present in the custody of the writer.

It will be convenient to cite here Stanhope's definitions of the following terms, *viz.*, *class, opposite class, original opposite class,* and *subordinate opposite class.*

Class. "An individual thing which alone possesses, or the total number of things each of which possesses, either any given quality or an assemblage of given qualities, is that which I call a *class.*"

Opposite class. "When any number of things is, by means of any definition, divided into any two classes only, which are perfectly distinct from each other; then each such class, when considered in relation to the other class, is that which I call the *opposite class.*"

Original opposite class. "Any opposite classes into which the total number of all things is divided are those which I call *original opposite classes.*"

Subordinate opposite class. "Any opposite classes into which any class is divided are those which I call *subordinate opposite classes.*"

All propositions are reduced by Stanhope to one form, namely, the expression of the identity of two or more things, or classes of things. In a letter to North bearing date 8th November, 1811, he says:—"I take any two of my opposite classes, which I will call A and B, B meaning whatever is not A. When I predicate with respect to A and B, that is, when I form any proposition, true or false, or positive or negative, upon the subject in question, I either aver the thing which I will call C to be in the class A, which denies it to be in B, or I aver it to be in B, which averment denies it to be in A. If I deny, I do the same thing in another form of words. Now it is evident that when I aver that C is in or of the class A, I only aver it to be *identic* with something in or of that class, and that I do and can do nothing else." In the same letter he replies to an objection which North had raised to his definition of a proposition as "an averment of identity". North had written, 4th Nov. 1811:—"I am the less inclined to admit it [namely, the principle of identity], unless I had seen the induction by which it has been formed, because I have read what Condillac had said of the principle itself, and because I could not see that he advanced in any degree the science to which he attempted to apply it, even though Geometry might seem the most promising of any other of the sciences. For my own part I confess that his demonstration fatigued and puzzled me beyond my powers of describing. *L'âme est un être pensant* is a proposition which may be of use in argumentation, but its equivalent (according to Condillac and your Lordship) *L'âme est l'âme* conveys no idea; consequently if such an identic proposition were inserted in any argumentation, it would be so far from forming a step to facilitate our progress that it would present a most insurmountable barrier to our passage: such identities would inevitably bar up every avenue to knowledge." The answer given by Stanhope to this objection throws much light on his general views of the proposition. "When I talk of identity," he says, "I do *not* say, as you make me say, que '*L'ame est l'âme*,' car cela ne dit rien, but I say thus: Example. Suppose I had heard that there was such a thing as a *comet.* I now perceive in the heavens at night *a star with a luminous tail;* that is all I know, and it is by means of that mental description that I distinguish that star from all other stars. I afterwards find my star, so distinguished, described and defined, amongst the stars of some new constellation, and I predicate that that star *has moved fast,* which is a quality of my comet, but which quality of my comet was before to me unknown; that is to say, I aver that 'the star with a luminous tail' and a star which 'moves fast,' that is, which belongs to the *class of stars that move fast,* are IDENTIC. Have I not made an advance in knowledge by my having so perceived, though in point of fact, it is the *same* comet, the *identical* comet, originally described by me incompletely, before I perceived, or could predicate, such identity? *Voilà tout.* Would it not sound to your ears very droll if a person were to say that *that star moving fast* means that it is identic with some star which does *not move fast?* Now if that would be evidently wrong, and if I have by my method *only two opposite classes, viz.,* stars *moving fast* and stars *not moving fast,* if the proposition in question does not mean that the given star is *identic* with a star in the second class, it must mean that it is identic with a star in the first class; for there are *two* classes only. This is my induction in other words."

The "method of identification," as the author calls it, is illustrated in "The Science of Reasoning" by numerous examples, from which the following are selected:—

"All triangles are trilaterals" means ("there being no difference between triangles and trilaterals, except as to the form of their respective definitions,") that "the class of *all* triangles and the class of *all* trilaterals are identic. "Pure silver is fusible" means that "All pure silver and *some* of those things which are fusible are identic". "Hardness belongs to diamonds," means that "*Some* of those things which possess the quality of hardness and *all* diamonds are identic". "Some printing presses cannot be worked without great labour," means that "*Some* printing presses are identic with *some* of those instruments which cannot be worked without great labour".

Readers of MIND will readily recognise in these examples an anticipation of Mr. George Bentham's four forms of affirmative propositions, forms which were afterwards adopted by Sir William Hamilton.[1] But Bentham, Hamilton, and others who start from the same principle could have known nothing of Stanhope's system.

This "method of identification" is applied to negative propositions which are "translated," that is, changed in form to affirmative ones. Any two mutually exclusive classes, called by Stanhope "opposite classes," A and not-A, divide the universe between them; and to deny that a thing belongs to one class is, in effect, to affirm that it belongs to the "opposite class". "When a man denies that a given thing is probable, he, in effect, avers that such given thing and one of those things which belong to the opposite class of probable [*sic*] things are identic." "No diamond is either ductile or magnetic," means that "Each diamond and something which is neither ductile nor magnetic are identic". "A flint is not ductile, means that All flints and some things which are not ductile are identic. Or, in other words, that All flints and some of those things which are in the opposite class of ductile things are identic." "No man is perfect, means that All men are imperfect." Generally, "No A is M" is equivalent to "All A is identic with something that is not M"; and in like manner, "Some A is not M" is equivalent to "Some A is identic with something which is not M". "This may also," says Stanhope, "be expressed *positively*. For if whatever be *not* M be called N, then the aforesaid negative proposition, Some A is not M, would also mean substantially that *Some* A is identic with *some* N. Or, in other words, that Some A is N." So, in a letter to North dated 27th Oct. 1811, he says: "A *negative* and a *positive* proposition, on my plan, are always one and the same. For to affirm a given thing to be of any 1st class or 2nd class is at the same time and of necessity, to *deny* it to be of the *class opposite*. And to *deny* a given thing to be of the 1st class or 2nd class is of necessity to *affirm* it to be of the *class opposite*. And *vice versa*. So that, when we *either* affirm *or* deny, we must do both, *sans le vouloir*."

Two other examples of affirmative propositions may be here cited. "This man exists," is equivalent to "One man and one individual who exists are identic". "A flint is on that table," means that "One flint and one thing which is on that table are identic".

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[1] Bentham, *Outline of a New System of Logic*, London, 1827.
Hamilton, *Discussions on Philosophy*, London, 1852. Art. IV. "Logic," first published in April, 1833.

It will be seen from the foregoing illustrations that Stanhope based his system on what De Morgan calls the *arithmetical* view of the proposition. He looked rather to the extension of terms than to their other capacity of intension. He regarded the sign of quantification affecting any term as indicating, definitely or indefinitely, how many objects were included in the "totality" described by that quantified term. By the method of identification every proposition, whether affirmative or negative, universal or particular, numerically definite or otherwise, is reducible to the form α A's are identic with β B's, where α and β, the signs of quantity, may be *all*, *some* (not all or possibly all), *most* (more than half), *fewest* (less than half), a number (an integer), or a definite ratio of part to whole (a fraction), but not *none*. According to Stanhope, α A and β B are to be regarded as "the same totality differently described". He distinguished between an averment of identity *qui ne dit rien*, such as Snow is snow, and an averment of identity *qui dit quelque chose*, such as Snow is white. He discarded the former as not available for logical purposes, and admitted only the latter into his system.

Whatever the signs of quantity, the total number of objects included in one "totality" α A is equal to the total number of objects included in the other β B, and therefore when α and β are both numbers, they are equal. But when α and β are both ratios, they are to one another inversely as the total number of A's to the total number of B's. This is easily shown. For let ω_1 be the whole number of A's, and ω_2 the whole number of B's; then $(\alpha\ \omega_1)$ A's are identic with $(\beta\ \omega_2)$ B's, where $(\alpha\ \omega_1)$ denotes the product of α into ω_1 and $(\beta\ \omega_2)$ the product of β into ω_2. Hence $\alpha\ \omega_1 = \beta\ \omega_2$, or $\frac{\alpha}{\beta} = \frac{\omega}{\omega_1}$. When α is a ratio and β is a number, $\frac{\alpha}{\beta} = \frac{1}{\omega_1}$; and when α is a number and β is a ratio, $\frac{\alpha}{\beta} = \omega_2$.

This view of the proposition determines the form of Stanhope's method of mediate inference and leads to an extension of the common doctrine. He proposes a rule "for discovering consequences in logic" which is a remarkable anticipation of that given by De Morgan for the numerically definite syllogism. It is a noteworthy fact that Stanhope does not limit the rule to a special form, but puts it forth as embodying the fundamental principle of all syllogistic ratiocination. We know not how he was led to frame it, whether by the study of the numerical syllogism, or by some more general considerations. We suspect the former. But certain it is that he announces it as a rule capable of universal application. Two forms of it are given, one symbolical, the other mechanical. To enable the reader to understand the former, it will be necessary to give the author's definitions of *ho*, *los* and *holos*; and to enable him to understand the latter, it will be necessary to describe the construction of the Demonstrator.

DEFINITIONS. "Whenever in the *first*[1] premise any totality, or any part thereof, and any given thing or things are stated to be identic, and whenever in the *second* premise (such second premise not being incompatible with the first) that same totality, or any part thereof, and any other given thing or things are stated to be identic; then such totality itself is that which I call *holos*. I have chosen the word *holos* because that word (ὅλος) in the Greek means whole. Such *holos* or such part of *holos* as is mentioned in the first premise as being identic with any given thing or things, is that which I call *ho*. Such *holos*, or such part of *holos* as is mentioned in the second premise as being identic with any given thing or things, is that which I call *los*. The reader will observe that *ho* as well as *los* may be identic with *holos*, but that neither *ho* nor *los* can ever exceed *holos*."

RULE. "Add *ho* to *los* and subtract *holos*. Then the remainder (if any) is the extent of the consequence. But if there be no remainder, or if there be no *holos*, then there can be no unconditional consequence."

In fact *holos* is the "middle term" of ordinary logic quantified universally, and *ho* and *los* are the extreme terms with their proper signs affixed, "distributed" or "undistributed" as the case may be. But Stanhope avoids the language of ordinary logic. In place of "the middle term" he speaks of a totality, by which however he means the middle term quantified to the extent of the universe of thought. In place of "distributed" and "undistributed," he speaks of "whole" or "total" and "part"; and in place of "quantity" he speaks of "extent". He might have retained the language, enlarging the definitions, of ordinary logic, but he preferred to employ a new nomenclature.

By "the extent of the consequence" Stanhope means the extent as measured by *holos* or the middle term distributed. Thus if α M's are A's and β M's are B's, and μ M denote the total number[2] of M's about which we are reasoning, then Stanhope's rule gives ($\alpha + \beta - \mu$) M's are both A's and B's, that is to say, $\alpha + \beta - \mu$ measures the extent of the consequence as between A and B. In other words, As many A's are B's as the sum of α and β exceeds μ. The method shows at once when such a conclusion as Some A's are B's, or Some B's are A's, is valid, and when it is not, and it also defines the extent of the "some" with reference to μ M or *holos.* At all events it gives what has been called the "minor limit". Further, it enables us to draw a conclusion in some cases where the common logic would be powerless. Stanhope gives an example which is evidently intended to illustrate his remarks, which we have already quoted, on Locke's objection to the commonly received doctrine —"that no Syllogistic Reasoning can be right and conclusive but what has at least one general Proposition".

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[1] The order of the premises is, in Stanhope's system, immaterial; whichever premise happens to be presented first is that which he calls *the first*.

[2] When a and β are ratios of part to whole, or fractions, μ is unity.

"Suppose I were to say, *some* of the five pictures in that room hang on the north side. And *some* of those five pictures are portraits. No conclusion can in this case be deduced; and the reason is, because from the two *undeterminate words, some* and *some,* which are respectively contained in the two premises, it does not appear *how many* of those five pictures hang on the north side of the room, nor *how many* of those five pictures are portraits. But without introducing any *general* proposition, I can word those two premises (which are both of them assertions respecting *particulars* alone) so as to render a conclusion absolutely necessary. I shall do it by introducing precision into each premise; as, for example, suppose I were to say *three-fifths* (which is most certainly not *all* but only *some*) of the five pictures hang on the north side of the room. And *four-fifths* (which is also most indisputably not *all* but only *some*) of the five pictures are portraits. Therefore at least *two-fifths* of the pictures (that is to say, at least two of the five) must at the same time be portraits and hang on the north side of the room."

This conclusion is given by the rule thus, *ho* + *los*—*holos*= $\left(\frac{3}{5} + \frac{4}{5} - 1\right)$ pictures=*two-fifths* of the pictures, or $(3+4-5)$ pictures=two of the pictures. That is to say, at least *two-fifths* of the pictures, or what is the same thing, *two* of them, are portraits hanging on the north side of the room.

A good example is given by De Morgan. Most men in a certain company have coats. Most men in the same company have waistcoats. Therefore some in the company have both coats and waistcoats.

Here by Stanhope's rule

ho + *los*—*holos*=(most + most—all) men
=some men.

That is, Some men in the company have both coats and waistcoats.

As another illustration, let the premises be

No boaster deserves respect.
Some heroes are boasters.

According to Stanhope, the first proposition is equivalent to

All boasters and some persons who do not deserve respect are identic.

And the second to

Some heroes and some boasters are identic.

Hence, by the first proposition, $ho = holos$, and the conclusion in this case is

$$ho + los - holos = los = \text{some boasters.}$$

That is, Some heroes (to the extent of Some boasters) are persons who do not deserve respect.

It appears therefore that the rule applies with equal effect whether the signs of quantity in the given premises be numerically definite, semi-definite or wholly indefinite. The arithmetical view of the proposition and syllogism is carried out to the fullest possible extent. By "all," used as a sign of quantity, is understood *every one*, or the *total number*, and by "some" is understood an *indefinite number* which may or may not equal the *total number*, but cannot mean the *absence of number*.

The Demonstrator is a simple contrivance for the mechanical working of this rule. It consists[1] of a brass plate four and a half inches long and four inches wide, affixed to a block of mahogany three quarters of an inch thick. In the centre there is a "square opening" or depression, about an inch and a half in area, and half an inch deep: this is called by Stanhope the *holon*. Across the *holon* two slides can be pushed; one, which is set in a slender mahogany frame, is of red transparent glass, and cannot be wholly withdrawn from the instrument; it works through an aperture on the right. The other is of wood, and seems to have been originally coloured gray, but to have become in the course of time bleached; this is spoken of by Stanhope as "the gray slider". In working the "Rule for the Logic of Certainty" this slide is passed through an aperture to the left; but in working another rule given by Stanhope, the "Rule for the Logic of Probability," it is drawn out and inserted in an aperture at the top, when of course it works at right angles to the red slide. In each case, when the slides are pushed in, the red covers the gray (or white). On the lower edge of the red slide, and on the upper edge of the square opening, the numerals

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[1] Earl Stanhope devised and caused to be executed several instruments of various sizes and constructions for the same purpose. The most convenient is the one described in the text, of which there are duplicates. One of these has been presented to the writer by the present Earl; the other is retained in the family. It is probable that this was the last form of the instrument which Stanhope devised. The others are less simple in construction and less effective in operation.

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

are printed, with a white dot on a black ground opposite to each numeral. The same scale, running from top to bottom, is printed on the left side of the square opening. These scales serve to indicate the extent to which the slides are pushed in.

On the face of the Demonstrator various rules and explanations are given, as in the accompanying diagram which represents the appearance of the instrument when both slides are pushed fully in.

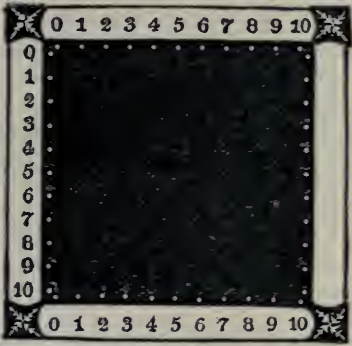
DEMONSTRATOR,

INVENTED BY

CHARLES EARL STANHOPE.

The right-hand edge of the gray points out, on this upper scale, the extent of the gray, in the logic of certainty.

The lower edge of the gray points out, on this side scale, the extent of the gray, in the logic of probability.



The area of the square opening, within the black frame, represents the holon, in all cases.

The right-hand side of the square opening points out, on this lower scale, the extent of the red, in all cases.

The right-hand edge of the gray points out, on the same lower scale, the extent of the consequence, (or dark red,) if any, in the logic of certainty.

Rule for the Logic of Certainty.

To the gray, add the red, and deduct the holon: the remainder, (or dark red,) if any, will be the extent of the consequence.

Rule for the Logic of Probability.

The proportion, between the area of the dark red and the area of the holon, is the probability which results from the gray and the red.

PRINTED BY EARL STANHOPE, CHEVENING, KENT.

FIG. I.

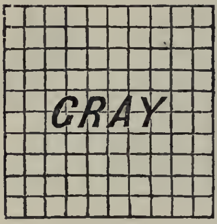


FIG. II.

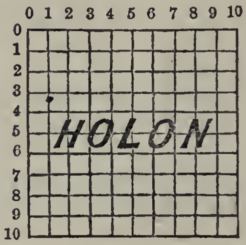
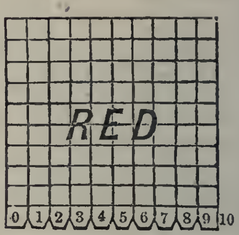


FIG. III.



By means of two plain cards and a sheet of paper any one can construct a Demonstrator for himself. For, on the sheet let a square be described, and let it be divided into one hundred equal squares; also let the numerals 0 to 10 be written on the upper and left side as in Fig. II. This may be called the *holon*. Next, let the cards be cut each of exactly the same size as the *holon*, and let them be similarly divided into squares. One of these, Fig. I, may be used instead of the gray slide, and the other, Fig. III., bearing on its lower edge the scale 0 to 10, instead of the red. It will be found convenient to snip the lower edge of the red card as in the last figure, so that when the gray is placed upon the *holon* (being brought on from the left for the logic of certainty, and from the top for the logic of probability) to the extent required by the first premise, and the red (being brought on from the right) to the extent required by the second premise, the extent to which the red overlaps the gray (which is the extent of the "dark red" in the instrument) may be at once apparent. Any problem which can be solved by means of Stanhope's Demonstrator can be solved equally well by means of these squares.

The following examples will sufficiently illustrate the working of the instrument.

1. All M is A.
All M is B.

Let the holon represent "All M". Place the gray slide to the extent of the holon to represent "Some A," and the red slide also to the extent of the holon to represent "Some B". Then the extent of the "dark red," that is, of the "union of the gray and the red," which in this case is the extent of the holon, is the extent of the consequence, and the instrument shows that

Some A is B, or Some B is A.

This is the conclusion of the common logic; but the conclusion given by the Demonstrator is somewhat more full and definite, *viz.*—

As many A's are B's, or as many B's are A's, as there are M's in all.

2. All jewels are valuable.
All diamonds are jewels.

Let the holon represent "All jewels," and place the gray slide to the extent of the holon to represent "Some valuable things"; and the red slide to any extent to represent "All diamonds". The dark red is the extent of the consequence. Here the extent of the dark red is the extent of the red, and the instrument shows that

All diamonds are valuable; or some valuable things are all diamonds.

3. No M is A.
All M is B.

These premises are equivalent to

All M is some not-A.
All M is some B.

Let the holon represent "All M"; and place the gray slide to the extent of the holon to represent "Some not-A," and the red slide to the extent of the holon to represent "Some B". The dark red which shows the extent of the consequence has in this case the same extent as the holon: the red is entirely gray, and the conclusion is

Some B is not-A,

or more definitely,

As many B's are not A's as there are M's in all.

4. No M is A.
All B is M.

These premises are equivalent to

All M is some not-A.
All B is some M.

The holon representing "All M," place the gray slide to the extent of the holon to represent "Some not-A," and the red slide to any extent to represent "All B". The dark red, showing the extent of the consequence, has in this case the same extent as the red: the red is entirely gray, and the conclusion is

All B is some not-A,

or, as expressed in the usual form, No B is A.

5. No M is A.
No M is B.

These premises may be written

All M is not-A.
All M is not-B.

Let the holon represent "All M," the gray, pushed in to the extent of the holon, "Some not-A," and the red, pushed in to the same extent, "Some not-B". The instrument shows that

Some not-A is not-B, or Some not-B is not-A,

or, more definitely,

As many not-A's are not-B's as there are M's in all.

This conclusion would not be accepted as valid in the scholastic system of logic, which virtually requires that the subject of a proposition should be affirmative. It is, however, perfectly legitimate in itself, though, as Stanhope says, "there is no conclusion as between A and B".

6. Some M is A.
Some M is B.

The holon representing "All M," place the gray slide to any extent to represent "Some A," and the red slide to any extent to represent "Some B". Here it is doubtful if the red will overlap the gray so as to give dark red, and therefore no certain conclusion can be drawn. When the number of objects denoted by the term "Some M" in the first premise added to the number denoted by the term "Some M" in the second, exceeds the total number of M's, the red will overlap the gray, that is to say, there will be some dark red, and in that case we can conclude that

Some A is B, or Some B is A.

7. Of ten trees seven are above 90 feet high.
Of the same ten trees six belong to Mr. North.

Let the holon represent the ten trees. Place the gray slide to the extent of 7 to represent the trees above 90 feet high; and place the red slide to the extent of 6 to represent the trees belonging to Mr. North. Then the instrument shows 3 as the extent of the dark red, so that the conclusion is that

There are three trees above 90 feet high belonging to Mr. North.

There may be more than three, but the instrument gives the "minor limit," the number *at least* which belong to Mr. North. If the red slide, with its scale reversed, were pushed in through the same aperture as the gray to the proper extent, the dark red, or the union of the red and the gray, would indicate the "major limit," the greatest number that can belong to Mr. North, *viz.*, 6.

8. Of ten pictures eight are portraits.
Of the same ten pictures four are by Rubens.

The holon representing all the pictures, place the gray slide to 8 to represent the portraits, and the red to 4 to represent the pictures by Rubens. Then the dark red shows the number of portraits by Rubens, *viz.*, 2. This is the "minor limit"; the "major" is shown by the red, *viz.*, 4.[1]

9. Mr. Venn's Problem.[2] "The members of a board were each of them either bondholders or shareholders, but not both, and the bondholders, as it happened, were all on the board. What conclusion can be drawn?"

Let the holon represent the whole body of bondholders and shareholders. Place the gray slide to any extent to represent "All bondholders," or, what is here the same thing, "All directors who are bondholders"; and place the red slide to represent "All shareholders". There must be no dark red, that is, the red must not overlap the gray, because no director is both a bondholder and a shareholder, but the red and the gray must together cover the holon. Then the instrument shows that

No shareholder is a bondholder,

the conclusion required.

The mechanical process does not seem to differ essentially from Mr. Venn's argument, than which, as he says, nothing can look simpler *when stated*:—"There can be no bondholders who are shareholders, for, if there were, they must be either on the board or off it. But they are not on it, by the first of the given statements; nor off it, by the second."

Stanhope's letters and papers contain no examples in illustration of his "Rule for the Logic of Probability," nor do we find in them any remarks on the general subject. But the rule solves effectually either of the following problems, *viz.*,

(*a*) Given the probabilities of two independent events, to find the probability of their concurrence; or

(*b*) Given the probability of one event, and the probability that if that event occur, another dependent on it will happen also, to find the probability of their concurrence.

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[1] To the riddle, "Two ducks before a duck, two ducks behind a duck, and one duck in the middle. How many ducks were there?" The answer often given is 5; but the answer required is 3—the least number or "minor limit".

[2] See article by Mr. Venn on "Boole's Logical System," in MIND IV., p. 487.

For, in either case, if p and q be the given probabilities, the required probability will be $p\ q$, as has long been known. And the instrument, when the gray slide is pushed through the upper aperture to the extent of p of the holon, and the red is pushed in to the extent of q of the holon, simply indicates the product of the two ratios p and q, each less than unity; for the extent of the dark red is evidently $p\ q$ of the holon.

10. A coin is tossed up twice; find the chance that it will fall head uppermost both times.

The chance of head in a single throw is $\frac{1}{2}$. Let the holon represent certainty. Place the gray slide, now inserted through the upper aperture, to the extent of 5, one-half of the holon, to represent the chance of head; and place the red slide to the same extent to represent the same chance; then the dark red is obviously one-fourth of the holon, and $\frac{1}{4}$ is, by the rule, the chance that the coin will fall head uppermost twice. We should have precisely the same process and result if the question were to find the chance of the coin falling head first and tail second; or to find the chance of tail first and head second; or to find the chance of tail twice.

The foregoing examples are all extremely simple, and indeed it does not seem possible by means of the Demonstrator in its present form to solve very difficult or complicated questions. It is constructed for problems involving only three logical terms; but additional slides would give the means of representing more terms and would thereby increase the range and power of the instrument. To Stanhope belongs the honour, and it is a very high honour, of being the first (probably) to attempt the solution of logical problems by a mechanical method. There may be some difference of opinion as to how far he succeeded, but there can be none as to the ingenuity of the attempt. The contrivances of earlier logicians, more especially the circles of Euler, probably prepared the way; but Stanhope did undoubtedly take a very important step in advance when he conceived and constructed his Demonstrator. His conversion of all propositions into the form of identities, by means of the quantification of the predicate, and the principle of his mechanical method, *viz.*, that the process of mind involved in the ordinary syllogism and that involved in the numerically definite syllogism are essentially one and the same, must be regarded as distinct contributions to logical science, and as remarkable anticipations of recent discoveries.

Robert Harley.

I append to this paper Stanhope's Table of Syllogisms, with his own observations and some others that may serve to explain it :—

STANHOPE TABLE OF SYLLOGISMS,
CONSISTING OF THIRTY-SIX FORMS.

OBSERVATION. — The word INCONCLUSIVE, as referring to this Table, means INCONCLUSIVE AS BETWEEN A AND B.

	All M is B.	All B is M.	Some M is B; or, Some B is M.	No M is B; or, No B is M.	Some M is not B.	Some B is not M.
All M is A	1 $\substack{M\\A\\H}$	2 $\substack{M\\B\\R}$	3 $\substack{M\\B\\R}$	19 $\substack{M\\A\\H}$	20 $\substack{M\\A\\R}$	21
All A is M	4 $\substack{M\\A\\G}$	5	6	22 $\substack{M\\A\\G}$	23	24 $\substack{N\\B\\R}$
Some M is A; or, Some A is M . . } . . .	7 $\substack{M\\A\\G}$	8	9	25 $\substack{M\\A\\G}$	26	27
No M is A; or, No A is M . . } . . .	10 $\substack{M\\B\\H}$	11 $\substack{M\\B\\R}$	12 $\substack{M\\B\\R}$	28	29	30
Some M is not A	13 $\substack{M\\B\\G}$	14	15	31	32	33
Some A is not M . . .	16	17 $\substack{N\\A\\G}$	18	34	35	36

The *large* Figures shew the CONCLUSIVE FORMS of Syllogisms.
The *small* Figures shew the INCONCLUSIVE FORMS of Syllogisms.

In the *first* large square,	FORM No. 1, by itself; — likewise Nos. 4, and 7, and the corresponding Nos. 2, and 3, ...	conclude POSITIVELY.
In the *second* large square,	Nos. 10, 11, 12, 13, and 17,	conclude NEGATIVELY.
And also, in the *third* large square, the corresponding	Nos. 19, 22, 25, 20, and 24,	conclude NEGATIVELY.

But, in the *fourth* large square, *all* the FORMS are INCONCLUSIVE.

Logicians, since the time of Aristotle, have set down the number of possible moods or syllogisms at sixty-four. They have taken the eight propositions relating to M and A, given in the Table, and have rung the changes on these with each one of the eight relating to M and B, also given in the Table, thus making eight times eight. Or, observing that three of the four forms A, E, I, O, are necessary to constitute a syllogism, they have determined the possible moods by finding all the arrangements of the four letters taken three at a time. The number of moods thus formed is sixty-four; but most of these are found to be invalid as contradicting one or more of the general canons of mediate inference. Stanhope, by treating as equivalent such propositions as No A is M and No M is A, and such propositions as Some A is M and Some M is A, reduces the number of possible forms to thirty-six. Of these, six stand alone, being unaltered by the interchange of A and B; but of the remaining thirty, one-half may be derived from the other half by this simple interchange. Two syllogisms which may be converted, the one into the other, by interchanging A and B, are called by Stanhope "twins".

The Table is made after the pattern of the common multiplication table, in which the products are found at the junction of the vertical and horizontal columns. Thus in the Logical Table, the vertical column, All B is M meets the horizontal column, All M is A in the second small square, and the syllogism of which these are the premises, is indicated by $2\overset{\text{M}}{\underset{\text{R}}{\text{B}}}$. In like manner the Syllogism whose premises are Some A is not M and All B is M, is indicated by $17\overset{\text{N}}{\underset{\text{G}}{\text{A}}}$. The three small capitals next to the large figures are not explained by Stanhope, who merely remarks, in a letter to Mr. North, that they "are added for the use of beginners to save them trouble". The first letter M or N (N being written no doubt for shortness in place of not-M), probably indicates what the holon represents, *viz.*: All M or All not-M, as the case may be. The second letter, A or B, indicates the subject of the conclusion, when the conclusion is expressed in the ordinary form. Lastly, the third letter, G for gray, R for red, or H for holon, indicates "the extent of the consequence". It will further elucidate this notation if we write down all the conclusions given by the Demonstrator for the several conclusive forms, "twins" being placed side by side.

$1\overset{\text{M}}{\underset{\text{H}}{\text{A}}}$. Some A is B, to the extent of the holon.

$2\overset{\text{M}}{\underset{\text{R}}{\text{B}}}$.	All B is A, to the extent of the red.	$4\overset{\text{M}}{\underset{\text{G}}{\text{A}}}$.	All A is B, to the extent of the gray.
$3\overset{\text{M}}{\underset{\text{R}}{\text{B}}}$.	Some B is A, to the extent of the red.	$7\overset{\text{M}}{\underset{\text{G}}{\text{A}}}$.	Some A is B, to the extent of the gray.
$10\overset{\text{M}}{\underset{\text{H}}{\text{B}}}$.	Some B is not A, to the extent of the holon.	$19\overset{\text{M}}{\underset{\text{H}}{\text{A}}}$.	Some A is not B, to the extent of the holon.
$11\overset{\text{M}}{\underset{\text{R}}{\text{B}}}$.	No B is A, to the extent of the red.	$22\overset{\text{M}}{\underset{\text{G}}{\text{A}}}$.	No A is B, to the extent of the gray.
$12\overset{\text{M}}{\underset{\text{R}}{\text{B}}}$.	Some B is not A, to the extent of the red.	$25\overset{\text{M}}{\underset{\text{G}}{\text{A}}}$.	Some A is not B, to the extent of the gray.
$13\overset{\text{M}}{\underset{\text{G}}{\text{B}}}$.	Some B is not A, to the extent of the gray.	$20\overset{\text{M}}{\underset{\text{R}}{\text{A}}}$.	Some A is not B, to the extent of the red.
$17\overset{\text{N}}{\underset{\text{G}}{\text{A}}}$.	Some A is not B, to the extent of the gray.	$24\overset{\text{M}}{\underset{\text{R}}{\text{B}}}$.	Some B is not A, to the extent of the red.

Among valid syllogisms Stanhope also places 28, viz.:

No M is A, or No A is M.
No M is B, or No B is M.

Therefore,

Some not-A is not-B, to the extent of the holon.

But here, as already pointed out (See Example 5), there is no conclusion as between A and B, which is really all that is meant by the rule of common logic that "from two negative premises no conclusion can be drawn".

All the other forms tabulated by Stanhope are inconclusive whether as between A and B, or not-A and B, or A and not-B, or not-A and not-B, save under special conditions.

R. H.

IV.—JOHN STUART MILL (I.).

I PROPOSE to review the life and character of John Stuart Mill. In addition to what all the world may know, I am aided by personal recollections extending over the second half of his life, and by documents in the possession of his family for some of the earlier portions.

My plan requires me to recall the account given in the *Autobiography* of the successive stages of his early education. There is a sort of pause or break at his eighth year, when he began Latin. His years from three to eight are occupied with Greek, English and Arithmetic; the Greek, strange to say, taking precedence. His earliest recollection of all, we are led to suppose, although not explicitly affirmed, is his committing to memory lists of Greek words written by his father on cards. He had been told that he was then three years old. Of course reading English, both printed and written, was supposed; and we have to infer that he had no recollection of that first start of all, which must have been taken before he completed his third year. Judging from the work gone through by his eighth year, he cannot be far wrong in putting down the date of the Greek commencement.

A letter from his father to Bentham, dated 25th July, 1809, affords us a momentary glimpse of him at the age of three years and two months. It was the occasion of the first visit to Bentham at Barrow Green. The letter is an apology for not being able to come on the day previously arranged, and is full of rather heavy joking about the domestic obstructions. The passage to our present purpose is this:—"When I received your letter on Monday, John, who is so desirous to be your inmate, was in the room, and observed me smiling [at Bentham's fun] as I read it. This excited his curiosity to know what it was about. I said it was Mr. Bentham asking us to go to Barrow Green. He desired to read that. I gave it to him to see what he would say, when he began, as if reading—Why have you not come to Barrow Green, and brought John with you?" The letter closes—"John asks if Monday (the day fixed) is not to-morrow". Not much is to be made of this, except that the child's precocious intellect is equal to a bit of waggery. The remark may seem natural, that if he were then learning his Greek cards, he might actually have read the letter; but no one that ever saw Bentham's hand-writing would make that remark. As I take it, the interest of the scene lies in disclosing a sunny moment in the habitually stern relationship of the father and son.

As an introduction to the next contemporary landmark of his progress, I need to quote from himself the account of his earliest reading. He says nothing of English books till he has first given a long string of Greek authors—Æsop's Fables, the Anabasis, Cyropædia and Memorabilia of Xenophon, Herodotus, some of Diogenes Laertius, part of Lucian, two speeches of Isocrates; all these seem to have been gone through before his eighth year. His English reading he does not connect with his Greek, but brings up at another stage of his narrative. From 1810 to 1813 (age, four to seven) the family had their residence at Newington Green, and his father took him out in morning walks in the lanes towards Hornsey, and in those walks he gave his father an account of his reading; the books cited being now histories in English—Robertson, Hume, Gibbon, Watson's Philip the Second and Third (his greatest favourite), Hooke's History of Rome (his favourite after Watson), Rollin in English, Langhorne's Plutarch, Burnett's Own Time, the history in the Annual Register; he goes on, after a remark or two, to add Millar on the English Government, Mosheim, M'Crie's Knox, a quantity of Voyages and Travels—Anson, Cook, &c.; Robinson Crusoe, Arabian Nights, Don Quixote, Miss Edgeworth's Tales, and Brooke's Fool of Quality. I repeat that all this was within the same four years as the Greek list above enumerated. At a later stage, he speaks of his fondness for writing histories; he successively composed a Roman History from Hooke, an abridgment of the Universal History, a History of Holland, and (in his eleventh and twelfth years) a History of the Roman Government. All these, he says, he destroyed. It happens, however, that a lady friend of the family copied and preserved the first of these essays, the Roman History; upon the copy is marked his age, six and a half years, which would be near the termination of the two formidable courses of reading now summarised. The sketch is very short, equal to between two and three of the present printed pages, and gives but a few scraps of the earlier traditions. If it is wonderful for the writer's age, it also shows that his enormous reading had as yet done little for him. He can make short sentences neatly enough; he gives the heads of the history, in the shape of the succession of kings and consuls and, in imitation of his author, he supplies erudite and critica notes.[1]

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[1] The beginning runs thus:—(heading 'First Alban Government: Roman Conquest in Italy') "We know not any part, says Dionysius of Halicarnassus, of the History of Rome till the Sicilian invasions. Before that time, the country had not been entered by any foreign invader. After the expulsion of Sicilians, Iberian (?) kings reigned for several years; but in the time of Latinus, Æneas, son of Venus and Anchises, came to Italy,

My next document is a letter, in his own hand, dated Sept. 13, 1814. He was now eight years and four months. He was in the second stage of his studies, when he had begun Latin, and had extended his reading in Greek to the poets, commencing with the Iliad. He was also teaching his sister, two years younger than himself. The event that gave rise to the letter was the migration of the whole family to Bentham's newly acquired residence, Ford Abbey, in Somersetshire. I will give a part and abridge the rest. His correspondent was some intimate friend of the family unknown.

"I have arrived at Ford Abbey without any accident, and am now safely settled there. We are all in good health, except that I have been ill of slight fever for several days, but am now perfectly recovered.

"It is time to give you a description of the Abbey. There is a little hall and a long cloister, which are reckoned very fine architecture, from the door, and likewise two beautiful rooms, a dining-parlour and a breakfast-parlour adorned with fine drawings within one door; on another side is a large hall, adorned with a gilt ceiling; and beyond it two other rooms, a dining and drawing room, of which the former contains various kinds of musical instruments, and the other is hung with beautiful tapestry.

"To this house there are many staircases. The first of them has little remarkable up it, but that three rooms are hung with tapestry, of which one contains a velvet bed, and is therefore called the velvet room. The looking-glass belonging to this room is decorated with nun's lace.

"Up another staircase is a large saloon, hung with admirable tapestry, as also a small library. From this saloon issues a long range of rooms, of which one is fitted up in the Chinese style, and another is hung with silk. There is a little further on a room, which, it is said, was once a nursery; though the old farmer Glyde, who lives hard by, called out his sons to hear the novelty of a child crying in the Abbey! which had not happened for the whole time he had lived here, being near thirty years. Down a staircase from here is a long range of bedrooms, generally called the Monks' Walk. From it is a staircase leading into the cloisters. The rest of the house is not worth mentioning. If I was to mention the whole it would tire you exceedingly, as this house is in reality so large that the eight rooms on one floor of the wing which we inhabit, which make not one-quarter of even that floor of the whole house, are as many as all the rooms in your house, and considerably larger.

"I have been to the parish church which is at Thornecomb. Mr. Hume has been here a great while. Mr. Koe came the other day, and Admiral

and established a kingdom there called Albania. He then succeeded Latinus in the government, and engaged in the wars of Italy. The Rutuli, a people living near the sea, and extending along the Numicius up to Lavinium, opposed him. However, Turnus their king was defeated and killed by Æneas. Æneas was killed soon after this. The war continued to be carried on chiefly against the Rutuli, to the time of Romulus, the first king of Rome. By him it was that Rome was built."

It was about the age when he wrote this history, that he was invited to an interview with Lady Spencer (wife of Lord Spencer, then at the head of the Admiralty); her curiosity being roused by the accounts of him. His conversation on the occasion turned chiefly on the personages of Roman history, whose characters he fluently hit off.

Chietekoff is expected. Willie and I have had rides in Mr. Hume's curricle."

He goes on to say—"What has been omitted here will be found in a journal which I am writing of this and last year's journeys". He then incontinently plunges again into descriptive particulars about the fish-ponds, the river Axe, the deer-parks, the walks, and Bentham's improvements. The performance is not a favourable specimen of his composition; the hand-writing is very scratchy, and barely shows what it became a few years later. The reference to Joseph Hume's visit has to be connected with the passage at arms between the elder Mill and Bentham, which I had formerly occasion to notice (MIND VIII., p. 525, 526).

By far the most important record of Mill's early years is his diary during part of his visit to France, in his fifteenth year; and from this I hope to illustrate with some precision the real character of his acquisitions and his intellectual power at that age. A very valuable introduction to this diary was lately brought to light by Mr. Roebuck, who had fortunately preserved a letter of Mill's that he had received from Jeremy Bentham's amanuensis in 1827. It was addressed to Bentham's brother, Sir Samuel Bentham, and it is dated July 30, 1819, his age being thirteen years and two months. The letter begins thus:—

"My Dear Sir,—It is so long since I had the pleasure of seeing you that I have almost forgotten when it was, but I believe it was in the year 1814, the first year we were at Ford Abbey. I am very much obliged to you for your enquiries with respect to my progress in my studies; and as nearly as I can remember, I will endeavour to give an account of them from that year."

He then goes on to detail his reading for the successive years from 1814. I do not print the details, but will compare them with the *Autobiography*, and indicate agreements and differences. In the year 1814 (by the letter), he read, in Greek, Thucydides and Anacreon (an odd coupling), and, *he believed*, the Electra of of Sophocles, the Phœnissæ of Euripides, the Plutus and the Clouds of Aristophanes, and the Philippics of Demosthenes; in Latin, only the Oration of Cicero for Archias, and part of the pleading against Verres. In Mathematics, he was reading Euclid; he began Euler's Algebra, and worked at Bonnycastle; also some of West's Geometry. In 1815, his reading was Homer's Odyssey, Theocritus, some of Pindar, the Orations of Æschines and Demosthenes on the Crown. In Latin: first six books of Ovid's Metamorphoses, first five books of Livy, the Buccolics and the first six books of the Æneid of Virgil, and part of Cicero de Oratione. In Mathematics: finished the six books of Euclid together with the Eleventh and Twelfth, and the Geometry of West; studied

Simpson's Conic Sections, and West's Conic Sections, Numeration and Spherics; and, in Algebra, Hessy's Algebra and Newton's Universal Arithmetic, in which last he performed all the problems without the book, and most of them without any help from the book.

1816. Greek: part of Polybius, Xenophon's Hellenics, the Ajax and Philoctetes of Sophocles, the Medea of Euripides, the Frogs of Aristophanes, and great part of the Anthologia Græca. Latin: all Horace, except the Epodes. Mathematics: Stewart's Propositiones Geometricæ, Playfair's Trigonometry at the end of his Euclid, "Geometry" in the Edin. Encyclopædia, and Simpson's Algebra.

1817. Greek: Thucydides (the second time), many Orations of Demosthenes, all Aristotle's Rhetoric, of which he made a synoptical table. Latin: Lucretius, all but the last book, Cicero, Ad Atticum, Topica, and De Partitione Oratoria. Mathematics: "Conic Sections" in Encyc. Brit.; Simpson's Fluxions, Keill's Astronomy, and Robison's Mechanical Philosophy.

1818. Greek: more of Demosthenes; four first books of Aristotle's Organon, tabulated in the manner of the Rhetoric. Latin: all Tacitus (except the Dialogue on Oratory), great part of Juvenal, beginning of Quintilian. Mathematics: Emerson's Optics, Trigonometry by Prof. Wallace, solution of problems, beginning of article on Fluxions in the Edin. Encyc. Began to learn Logic, read several Latin treatises—Smith, Brerewood, Du Trieu, part of Burgersdicius, Hobbes.

1819 (the year when the letter was written). Greek: Plato's Gorgias, Protagoras, and Republic. Latin: Quintilian, in course of reading. Mathematics: Fluxions, problems in Simpson's Select Exercises. Also, he is now learning Political Economy.

While this enumeration is much fuller than that in the *Autobiography*, it omits mention of several works there given: as Sallust, Terence, Dionysius, and Polybius. The private English reading is in both: chiefly Mitford's Greece, Hooke and Ferguson's Rome and the Ancient Universal History. His composing Roman History, as well as Poetry and a Tragedy, is given in both. The Higher Mathematics of this period is but slightly given in the *Autobiography.*

This letter was doubtless intended not merely to satisfy Sir Samuel's curiosity as to his precocity of acquirement, but also to pave the way for the invitation to accompany him to France the following year (1820).

A carefully written diary, extending over the first five months of his stay in France, is by far the most satisfactory record that is now to be had of his youthful studies.[1]

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[1] Sir Samuel Bentham, the brother of Jeremy Bentham, was himself a

We have his reading and all his other occupations recorded day by day, together with occasional reflections and discussions that attest his thinking power at that age. The diary was regularly transmitted to his father. At first he writes in English; but as one of the purposes of his visiting France was to learn the language, he soon changes to French. Printed in full it would be nearly as long as this article. I shall endeavour to select some of the more illustrative details.

He left London on the 15th May, 1820, five days before completing his fourteenth year. He travelled in company with Mr. Ensor, an Irish gentleman, a friend of his father's. The diary recounts all the incidents of the journey—the coach to Dover, the passage across, the thirty-three hours in the diligence to Paris. He goes first to a hotel, but on presenting an introduction by his father to M. Say, he is invited to the house of that distinguished political economist. The family of the Says—an eldest son, Horace Say, a daughter at home, the youngest son, Alfred, at school *en pension*, but coming home on Saturday and Sunday, and their mother—devote themselves to taking him about Paris. He gives his father an account of all the sights, but without much criticism. His moral indignation bursts forth in his account of the Palais Royal, an "immense building belonging to the profligate Duc d'Orleans, who having ruined himself with debauchery, resolved to let the arcades of his palace to various tradesmen". The Sunday after his arrival (May 21) is so hot that he did not go out, but played at battledore and shuttlecock with Alfred Say. He delivers various messages from his father and Bentham, and contracts new acquaintances, from whom he receives farther attentions. The most notable was the Count Berthollet, to whom he took a paper from Bentham. Madame Berthollet showed him her very beautiful

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remarkable man. His first service was in the Russian army, where his soldiering was intermingled with suggestions for improvements of all sorts, and especially mechanical inventions, for which he had a pronounced genius. One of his proposals to the Russian government was the Panopticon prison, of which he was the originator. He came over to England in 1795, and received from our Government the appointment of Superintendent of the Dockyard at Portsmouth, where his talent for invention had scope in the improvement of the navy. He married the daughter of an early friend of his brother's, Dr. John Fordyce, a physician in London, called by Bentham, "one of the coldest of the cold Scotch"; this lady had the domestic supervision of Mill for more than a year. On retiring from the Dockyard, Sir Samuel bought an estate in the South of France for the sake of a residence there; and this led to his inviting Mill to reside with him, first at Toulouse, and afterwards at Montpellier. The family consisted of one son, Mr. George Bentham, the well-known botanist, and three daughters,—all older than Mill.

garden, and desired him to call on his return; he learnt afterwards that he was to meet Laplace. On the 27th, after nine days' stay in Paris, he bids goodbye to Mr. Ensor and the Says, and proceeds on his way to join the Bentham family, then at a chateau, belonging to the Marquis de Pompignan, a few miles from Toulouse. The journey occupies four days, and is not without incidents. He makes a blunder in choosing the cabriolet of the diligence, and finds himself in low company. At Orleans, a butcher, with the largest belly he had ever seen, came in and kept incessantly smoking. On the third day he is at Limoges, and breakfasts in company with a good-natured gentleman from the interior; but his own company does not much improve; the butcher leaves, but a very dirty *fille*, with an eruption in her face, keeps up his annoyance. The following day, a vacancy occurs in the interior, and he claims it as the passenger of longest standing; a lady contests it with him, and it has to be referred to the *maire;* the retiring passenger, a young *avocat*, pleading his case. He is now in good company, and his account of the successive localities is minute and cheerful.

He arrives at his destination at two, A.M., the 2nd of June, is received by Mr. George Bentham, and meets the family at breakfast. They take him out a walk, and he does no work that day, but begins a letter to his father. Next day he makes an excursion to Toulouse, spends the night there, and gives up a second day to sight-seeing; there was a great religious procession that day. He makes the acquaintance of a Dr. Russell, resident at Toulouse, with whose family he afterwards associates. The following day, the 5th, he sees the Marquis and Madame de Pompignan, the proprietors of the Chateau. On the 6th, he commences work; and now begins our information as to his mode of allocating his time to study. The entry for this day merely sets forth that he got up early; went into the Library; read some of Lucian (who is his chief Greek reading for the weeks to follow); also some of Millot, by Mr. George's advice; "learnt a French fable by rote"—the beginning of his practice in French. 7th. "Learnt a very long fable; wrote over again, with many improvements, my Dialogue, part I." This Dialogue frequently comes up, but without farther explanation. We must take it as one of his exercises in original composition, perhaps in imitation of the Platonic Dialogues. 8th. Engaged with Mr. G. in arranging the books of the Library, which seems to have been set as a task to the boys. "Wrote some of Dialogue; learnt a very long fable by heart; resolved some problems of West (Algebra); did French exercises (translating and so forth)." 9th. "Breakfasted early and went with Sir S. and Lady Bentham in the carriage to Montauban; took a volume of Racine in my pocket, and read two plays;" remark his reading *pace*. On returning home he reads a comedy of Voltaire. 10th. "Before breakfast, learnt another fable, and read some of Virgil. After breakfast, wrote some of my Dialogue, and some French exercises. Wrought some of the Differential Calculus. Read a tragedy of Corneille." 11th. "Learnt another fable; finished my Dialogue. If good for nothing beside, it is good as an exercise to my reasoning powers, as well as to my invention, both which it has tried extremely." We may be sure that it aimed at something very high. "Wrote some French exercises; began to learn an extremely long fable. Read a comedy of Molière, and after dinner a tragedy of Voltaire. Took a short walk by myself out of the pleasure grounds." 12th. "Rose very early. Sir S. B. and Mr. G. went in the carriage to Toulouse. Before breakfast, I wrote some French exercises, read some of Lucian's Hermotimus. Revised part of my Dialogue. After breakfast went with the *domestique* Piertot to see his Metairie and his little piece of land and help him to gather cherries. After returning I finished the long fable." Then follows an apology for not working at his Mathematics; Sir Samuel's books are not unpacked, and in the Library of the house he finds chiefly French literature, and hence his readings in Racine, &c. Another tragedy read to-day. 13th. Before breakfast assists Mr. G. in packing. Wrote French exercises, read Voltaire and Molière. It is by the advice of the family that he reads plays, for the sake of dialogue. After dinner, he takes a long walk on the hills behind Pompignan; in his return falls in with the *garde champêtre*, who communicates all about himself and his district. Weather now hot. 14th. Could not get into the Library. Walked about the grounds with Mr. G. and one of his sisters; came in and wrote French exercises. Begins a new study,—to master the Departments of France. Reads Lucian. 15th. Got up early; began his Livre Statistique of the Departments—chief towns, rivers, population, &c. Learns by heart the names of the Departments and their capital towns. Acting on a suggestion of Lady B., he reads and takes notes of some parts of the Code Napoleon. Meets the Russell family at dinner, and walks with them. 16th. Up early, walked out, reads a tragedy of Voltaire. A mad dog has bitten several persons. More of Code Napoleon; Virgil; French exercises. Here he concludes what is to make his first letter to his father, and appends to the diary a dissertation on the state of French Politics; the then exciting topic being the Law of Elections. We are surprised at the quantity of information he has already got together, partly we may suppose from conversations, and partly from newspapers; but he never once mentions reading a newspaper; and his opportunities of conversation are very much restricted by incessant studies. Besides passing politics, illustrated by anecdotes, he has inquired into education, the statistics of population, and the details of the provincial government.

I continue the extracts from the Diary. June 17th. Late in bed, not knowing the time. One of Sir Samuel's daughters has given him Legendre's Geometry, to which he applies himself, at first, for the sake of French Mathematical terms. Performs an investigation in the Differential Calculus. A short walk. After dinner, a tragedy of Corneille. 18th. Rose early. Wrote French exercises, and read Voltaire. It is a fête day (Sunday), and the peasants danced in the pleasure grounds before the house. After breakfast, finished exercises, then walked with the family in the grounds. Received from Mr. G. a lecture on Botany (probably the beginning of what became his favourite recreation). Wrote out the account of his expenditure since leaving Paris, gives the items, amounting to 148 francs. Describes the peasants' dance. 19th. Rose early. Finished the Hermotimus of Lucian, and yesterday's tragedy; wrote French exercises. After breakfast, assisted in packing up, as the family are leaving the chateau for a residence in Toulouse. Finds time before dinner for another tragedy of Voltaire. In the evening, took to an article in the Annales de Chimie (his interest in Chemistry being now of four years' standing). 20th. Occupied principally with preparations for leaving. 21st. The house in confusion. Still he does a good stroke of French reading. 22nd. In bed till after nine; could not account for it. The confusion is worse confounded; doesn't know what to do about his books; is now debarred from the library. Has taken out his exercise-book from his trunk, and written a considerable portion of exercises. Has added to his Livre Statistique; the Departments are now fully in his head: next topic the course of the Rivers—an occupation when he has nothing else to do. 23rd. Rose at 3 o'clock, to finish packing for departure. As there could be no reading, at 5 he takes a long country walk to Fronton; gives two pages of the diary to a description of the country, and the agriculture. Books being all locked up, he expects to feel ennui for a little time. Writes some of his Livre, converses with two intelligent workmen, gives particulars. After dinner, walks to the village of ——— on the Garonne, describes the river itself in the neighbourhood. In the evening, being the "Veille de St. Jean," saw the fires lighted up in the district. 24th. Lay in bed purposely late, having nothing to do. M. Le Comte (son of the proprietor) comes in, and politely offers him the key of the library, shows him a book of prints; he also scores a tragedy of Voltaire. As this is the last day before moving to Toulouse, he makes a pause, and despatches his seven days' diary to his father, accompanied with a short letter in French to R. Doane, Bentham's amanuensis, chiefly personal and gossipy; none of his letters to Mr. Doane take up matters of thought. 25th. Rose at half-past two for the journey. He walks out on foot, to be overtaken by a char-à-banc, with part of the family. One of the girls drove part of the way, and gave him the reins for the remainder, as a lesson in driving. They take up their quarters in one of the streets, where they have a very good 'Apartment' (I suppose a flat); still after the chateau, they feel considerably cramped; his room a little hole, which he proceeds at once to arrange, having got shelves for his books. Same night, finishes Lucian's ***Βίων Πρᾶσις***, and reads some of Thomson's Chemistry, which is part of his own library.

The family remains in Toulouse for some time. We have his diary for nearly six weeks. It is the intention of the Benthams to find him, not merely a French master, but instruction in various accomplishments—music, dancing, fencing, horsemanship. It is some time before the arrangements are made, so that his first days are purely devoted to book-studies; and the diary is an exact record of the nature, amount, and duration of his reading, very nearly as at home. It also gives occasional glimpses of his thinking power at the age he has now reached. It is farther interesting as exhibiting his tone towards his father. I will merely quote enough to complete the illustration of these various particulars.

26th. Besides a mass of French reading, reports two eclogues of Virgil and the Alectryon of Lucian. Remarks that having so much French to do, he cannot read Latin and Greek and study Mathematics every day, and means to give one day to Mathematics and one to Latin and Greek. 27th. Rose early. Begins the practice of going every morning to bathe in the Garonne, a little above the town: he is accompanied regularly by Mr. George, and on this occasion by Dr. Russell's boys. To-day reads Legendre's Geometry. Gives a subtle criticism of the author's method, which he thinks excellent; praises the derivation of the Axioms from the Definitions, as conforming to Hobbes's doctrine that the science is founded on Definitions. Approves also of the way the more elementary theorems are deduced. Learnt a very long French fable. Solved a problem in West's Algebra that had baffled him for several years. Mr. George has already engaged for him the best dancing-master in the place. 28th. (Classical day.) Bathing as usual. Two eclogues of Virgil, and a French grammatical treatise on Pronouns. Read some more of Legendre (resolution broken through already): thinks his line of deduction better than Euclid, or even than

West. Studies Bentham's Chrestomathic Tables (a vast and minute scheme of the divisions of knowledge). Began the Vocalium Judicium of Lucian. Goes for a second dancing-lesson. 29th. Rather late in returning from the river. An eclogue of Virgil; finishes the Vocalium Judicium; wrote French exercises, read some of Boileau's little pieces; is to have Voltaire's works soon; asks Mr. George about a Praxis in the higher Mathematics, having performed over and over again all the problems in Lacroix's Differential Calculus. Resolves more problems of West, including the second of two that had long puzzled him. After dinner began Lucian's Cataplus. 30th. Two eclogues of Virgil; finished Cataplus; more of Legendre, discovered a flaw in one of his demonstrations; wrote French exercises; read some of Sanderson's Logic; also some of Thomson's Chemistry. July 1st. Treatise on Pronouns finished; Sanderson; began Lucian's Necyomantia; French exercises; finished first book of Legendre; Thomson's Chemistry. Dancing-lesson. A singing-master engaged. 2nd. Georgics of Virgil, 99 lines; more of the Necyomantia before breakfast. After breakfast, Thomson's Chemistry. Wrote Livre Geographique. In the evening the whole family go to Franconi's Circus; describes the exploits. Has to be measured for a new suit, French fashion: his English suit being inadmissible, trousers too short, waistcoat too long. The Russells call in the evening, and there is an earnest talk on politics, English and French, which he details. 3rd. A breakdown in the char-à-banc that takes them to the river. Has now got a singing-master, and takes first lesson in *Solféges et Principes de Musique.* Again at Franconi's, and full of the performance; for a wonder, no studies recorded. 4th. Rose at 5; home from bathing, &c., at 7½. Has obtained Voltaire's Essai sur les Mœurs, which he includes amongst his stated reading: breakfast at ¼ to 9: at 9½, begins Voltaire where he left off in England, read six chapters in two hours; Virgil's Georgics, 47 lines; at 12¼ began a treatise on French Adverbs; at 1½, began the second book of Legendre, read the definitions and five propositions; miscellaneous employments till 3, then took second Music-lesson. Dined; family again to Franconi's, but he could not give up his dancing-lesson; this got, he writes French exercises and practises music. 5th. Rose at 5; too rainy for bathing. Five chapters of Voltaire; from 7½ till 8½, Mr. G. corrects his French exercises which had got into arrears as regards correction; Music-master came; at 9½ began new exercises (French); puts his room in order; at 11¼ took out Lucian and finished Necyomantia; five propositions of Legendre, renewed expressions of his superiority to all other geometers; practised Music-lessons; Thomson's Chemistry, made out various Chemical Tables, the drift not explained; at 3¼, tried several propositions in West, and made out two that he had formerly failed in; began a table of 58 rivers in France, to show what departments each passes through, and the chief towns on their banks; 4, dined; finishes Chemical Table; dancing-lesson; supped. Reports that a distinguished music-mistress is engaged at whose house he is to have instrumental practice. 6th. Rose at 6; no bathing; five chapters of Voltaire; a quarter of an hour to West's Problems; lesson in Music (*Principes*); problems resumed; breakfasted, and tried problem again till 10¼; French exercises till 11; began to correct his Dialogue, formerly mentioned, till 12¼; summoned to dress for going out to call; has found a French master; at 1¼, returned and corrected Dialogue till 3¼; Thomson till 4 (dinner), resumed till 6; Mr. G. corrects his French exercises; went out for his French lesson, but the master did not teach on Sundays and Thursdays; back to Thomson till 8; repeated Fables to Mr. G.; miscellaneous affairs; supped; journal always written just before going to bed. 7th. Rose 5¾; five chapters Voltaire till 7; till 7¼, 46 lines of Virgil; till 8, Lucian's Jupiter Confutatus; goes on a family errand; Music-lesson till 9 (*Principes*); Lucian continued till 9½, and finished after breakfast at 10¼; a call required him to dress; read Thomson and made Tables till 12¼; seven propositions of Legendre; has him over the coals for his confusion in regard to ratio—"takes away a good deal of my opinion of the merit of the work as an elementary work": till 1½, wrote exercises and various miscellanies; till 2½ the treatise on Adverbs; till 3¾, Thomson; Livre Geographique and miscellanies till 5; eats a little, dinner being uncertain, owing to a family event; goes for first lesson to music-mistress, a lady reduced by the Revolution, and living by her musical talents; henceforth to practise at her house daily from 11 to 12, and take a lesson in the evening; dined on return, then dancing-lesson. 9th. Rose at 5; five chapters Voltaire; 6¾, Adverbs; 7¾, the Prometheus of Lucian; 8½ till 9, first lesson of *Solféges* together with *Principes*; continued Prometheus till breakfast; miscellaneous occupation till the hour of music-lesson at Mad. Boulet's; home at 12½, ten propositions of Legendre: "if anything could palliate the fault I have noticed of introducing the ratio and the measures of angles before the right place, it is the facility which this method gives to the demonstration of the subsequent propositions; this, however, cannot excuse such a palpable logical error, &c." Mr. G. is to procure Cagnioli's Trigonometry, but a Praxis in the higher Mathematics is not yet forthcoming. 10th. Starts at 4 with Mr. G. and the Russells on a day's excursion to the forest of

Bouconne, three leagues from Toulouse, the object being to collect plants and insects. Makes his *coup d'essai* at catching butterflies, got only about ten worth keeping; the adventures of the day fully given. 11th. Yesterday's fatigue keeps him in bed late; one chapter of Voltaire; at 7½, with Mr. G., to begin with his French master, who hears his pronounciation, and sets him plenty of work. Taken with a party to the house of an astronomer, M. Daubuisson, and shown his instruments; then to the house of his brother, a great mineralogist. Returns at 2 to commence the formidable course of lessons set by the French master. Goes successively to his music-master and music-mistress. Introduces a remark as to the great kindness of the family in constantly, without ill-humour, explaining to him the defects in his way of conducting himself in society: "I ought to be very thankful". 12th. Hears from his father that Lady B. has written a good account of him. Replies in full to the matters in his father's letter; is glad to hear of his article on Government and promises on his return to read it with great attention. Indicates that in future his French lessons will very much engross his time. He is to take the first opportunity of sending the Dialogue, on which he has taken great pains both with expression and with reasoning. Apologises for giving more time to Mathematics than to Latin and Greek.

A fencing-master is now provided for him, and in two days more a riding-master, so that we have seen him at his best as regards book-studies. He keeps these up a few hours every day, but the largest part of the day is taken up with his other exercises. The only thing deserving mention now is the occasional notice of new subjects. Thus, he begins a treatise on Value, and Sir S. B. is to get Say's book for him. His French master seems to prescribe, among other things, translating from Latin into French, and he takes up the speech of Catiline in Sallust, and afterwards some Odes of Horace. There is another day's excursion to the forest of Ramelle, with many incidents. He soon reports having read the last of Lucian, and gives a short review of him, accompanied with high admiration; Hermotimus he considers a masterpiece of ingenious reasoning. In a letter to his mother he adverts to his progress in music and dancing; he advises his two elder sisters to remit their music till he returns, as he discovers now that they were on a wrong plan. Writes a letter in Latin to those two sisters, correct enough but not very high composition. Begins a Dialogue at the suggestion of Lady B., on the question—whether great landed estates and great establishments in commerce or manufacturers, or small ones, are most conducive to the general happiness; in the circumstances, rather venturesome. The following day began, also by Lady B's. advice, to write on the Definition of Political Economy. Very much elated by "excellent news of the revolution in Italy". Attends three Lectures on Modern Greek, and gives his father an account of the departures from the Ancient Greek. In the beginning of August the lessons are at an end; the family going for a tour in the Pyrenees. What remains of the diary is occupied with this tour, its incidents and descriptions, and is written in French.

I must, however, advert to an interesting letter from Lady Bentham to his father, dated 14th Sept. It refers to a previous letter of hers giving particulars of John's progress in French and other branches of acquirement. The family is to reside in Montpellier, and the purpose of the present letter is to recommend to his father to allow him to spend the winter there, and to attend the public lectures of the college. Mr. Bernard, a distinguished chemist, who had visited the Benthams at Toulouse, had taken an interest in him, and sounded his depths and deficiencies, and gives the same opinion. As the party has now been boxed up together for some weeks, his habits and peculiarities had been more closely attended to than ever, and (I quote the words) "we have been considerably successful in getting the better of his inactivity of mind and body when left to himself". This probably refers to his ennui when deprived of books; it being apparent that great as was his interest in scenery, he could not as yet subsist upon that alone. The letter goes on— "Upon all occasions his gentleness under reproof and thankfulness for correction are remarkable; and as it is by reason supported by examples we point out to him that we endeavour to convince him—not by command that we induce him to do so and so, we trust that you will have satisfaction from that part of his education we are giving him to fit him for commerce with the world at large". Lady Bentham does not omit to add that he must also dress well.

The remainder of the diary serves mainly to show his growing taste for scenery and his powers of description. He depicts climate, productions, villages, the habits of the people, as well as the views that were encountered. The party make the ascent of Le Pic du Midi de Bigorre, and he is in raptures with the prospect. "Mais jamais je n' oublierai la vue du côté méridionale". In short, to describe its magnificence would need a volume!

We may now conceive with some degree of precision the intellectual calibre of this marvellous boy. In the first place we learn the number of hours that he could devote to study each day. From two to three hours before breakfast, about five hours between breakfast and dinner, and two or three in the evening, make up a working day of nine hours clear. And while at Toulouse, scarcely any portion of his reading could be called recreative. His lightest literature was in French, and was intended as practice in the language. Probably at home his reading-day may have often been longer; it would scarcely ever be shorter. For a scholar, in mature years, eight or nine hours' reading would not be extraordinary; but then there is no longer the same tasking of the memory. Mill's power of application all through his early years was without doubt amazing; and although he suffered from it in premature ill-health, it was a foretaste of what he could do throughout his whole life. It attested a combination of cerebral activity and constitutional vigour that is as rare as genius; his younger brothers succumbed under a far less severe discipline.

That the application was excessive, I for one would affirm without any hesitation. That his health suffered, we have ample evidence, which I shall afterwards produce. That his mental progress might have been as great with a smaller strain on his powers, I am strongly inclined to believe, although the proof is not so easy. We must look a little closer at the facts.

I cannot help thinking that the rapid and unbroken transitions from one study to another must have been unfavourable to a due impression on the memory. He lost not a moment in passing from subject to subject in his reading: he hurried home from his music-lesson, or fencing-lesson, to his books. Now we know well enough that the nervous currents when strongly aroused in any direction tend to persist for some time: in the case of learning any thing, this persistence will count in stamping the impression; and part of the effect of a lesson must be lost in hurrying without a moment's break to something new, even although the change of subject is of the nature of relief. By his own account, his lessons at Toulouse, with the exception of French and music, took no effect upon him. Nor is this the worst feature of Mill's programme. According to our present notions of physical and mental training, he ought to have had a decided break in the afternoon. Considering that he was at work from about six in the morning, with only half-an-hour for breakfast, he should clearly have had a cessation of several hours, extending over dinner between one and two; especially as he gave up the evening to his hardest subjects. Of course this interval should have been devoted to out-of-doors recreation. It is quite true that both father and son were alive to the necessity of walking, and practised it even to excess; in fact, counted too much upon it as a means of renewing the forces of the brain:

their walks were merely a part of their working-day—a hearing and giving of lessons.

What with his own recital in the *Autobiography*, and the minuter details in the letter to Sir S. Bentham, and the diary, we have a complete account of his reading and study in every form. The amount is, of course, stupendous for a child. The choice and the sequence of books and subjects suggest various reflections. His beginning Greek at so early an age was no doubt due to his father's strong predilection for the language. What we wonder at most is the order of his reading. Before his eighth year, he had read not merely the easier writers, but six dialogues of Plato (the Theætetus he admits he did not understand). He was only eight when he first read Thucydides, as well as a number of plays; at nine, he read parts of Demosthenes; at eleven, he read Thucydides the second time. What his reading of Thucydides could be at eight, we may dimly imagine: it could be nothing but an exercise in the Greek language; and the same remark must be applicable to the great mass of his early reading both in Greek and in Latin. At Toulouse we find him still reading Virgil, although five years before he had read the Buccolics and six books of the Æneid. Moreover, at Toulouse, his Greek reading was Lucian, a very easy writer whom he had begun before he was eight; the noticeable fact being that he is now taking an interest in the writer's thoughts and able to criticise him. It is apparent enough that his vast early reading was too rapid, and as a consequence superficial. It is noticeable how rare is his avowal of interest in the subjects of the classical books; Lucian is an exception; Quintilian is another. He was set by his father to make an analysis of Aristotle's Rhetoric and Organon, and doubtless his mind was cast for Logic from the first. His inaptitude for the matter of the Greek and Latin poets is unambiguously shown; he read Homer in Greek, but his interest was awakened only by Pope's translation. His readings in the English poets for the most part made no impression upon him whatever. He had a boyish delight in action, battles, heroism and energy; and seeing that whatever he felt, he felt intensely, his devotion to that kind of literature was very ardent. But whether from early habits, or from native peculiarity, he had all his life an extraordinary power of *re*-reading books. His first reading merely skimmed the subject; if a book pleased him, and he wished to study it, he read it two or three times, not after an interval, but immediately. I cannot but think that in this practice there is a waste of power.

It was impossible for his father to test the adequacy of his study of Greek and Latin works, except in select cases; and hence it must have been very slovenly. In Mathematics, he had little or no assistance, but in it there are self-acting tests. His readings in Physical Science were also untutored: unless at Montpellier, he never had any masters, and his knowledge never came to maturity.

If I were to compare him in his fifteenth year with the most intellectual youth that I have ever known, or heard or read about, I should say that his attainments on the whole are not unparalleled, although, I admit, very rare. His classical knowledge, such as it was, could easily be forced upon a clever youth at that age. The Mathematics could not be so easily commanded. The best mathematicians have seldom been capable of beginning Euclid at eight or nine,[1] and even granting that in this, as in other subjects, he made small way at first, yet the Toulouse diary shows us what he could do at fourteen; and I should be curious to know whether Herschel, De Morgan, or Airy could have done as much. I have little doubt that, with forcing, these men would all have equalled him in his Classics and Mathematics combined. The one thing, in my judgment, where Mill was most markedly in advance of his years, was Logic. It was not merely that he had read treatises on the Formal Logic, as well as Hobbes's *Computatio sive Logica*, but that he was able to chop Logic with his father in regard to the foundations and demonstrations of Geometry. I have never known a similar case of precocity. We must remember, however, that while his father pretended to teach him everything, yet, in point of fact, there were a few things that he could and did teach effectually: one of these was Logic; the others were Political Economy, Historical Philosophy and Politics, all which were eminently his own subjects. On these John was a truly precocious youth; his innate aptitudes, which must have been great, received the utmost stimulation that it was possible to apply. His father put enormous stress upon Logic, even in the scholastic garb; but he was himself far more of a logician than the writers of any of the manuals. In that war against vague, ambiguous, flimsy, unanalysed words and phrases, carried on alike by Bentham and by himself, in the wide domains of Politics and Ethics, he put forth a faculty not imparted by the scholastic Logic; and in this higher training the son was early and persistently indoctrinated. To this was added other parts of logical discipline that may also be called unwritten: as, for example, the weighing and balancing of arguments *pro* and *con* in every question; the looking out for snares and fallacies of a much wider compass than those set down in the common manuals. (See the beginning of the 'Bentham' article for Mill's delineation of Bentham's Logic.)

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[1] Locke knew a young gentleman who could demonstrate several propositions in Euclid *before he was thirteen.*

He returned to England in July, 1821, after a stay of fourteen months. He sufficiently describes the fruits of his stay in France, which included a familiar knowledge of the French language, and acquaintance with ordinary French literature. If we may judge from what he says afterwards, his acquaintance with the literature was strictly *ordinary*; he knew nothing of the French Revolution, and it was at a much later period that he studied French authors for the improvement of his style.

He had still nearly two years before entering on official life: and he tells us how these were occupied. His father had become acquainted with John Austin, who assisted him in Roman Law, his destination being the bar. He also got deep into Bentham for the first time, and began Psychology. He now read the history of the French Revolution. An undated letter to his father probably belongs to this period. He was on a visit to Mr. and Mrs Austin at Norwich. The letter begins with a short account of his studies. He read Blackstone (with Mr. Austin) three or four hours daily, and a portion of Bentham's "Introduction" (I suppose the Morals and Legislation) in the evening. Among other things, "I have found time to write the defence of Pericles in answer to the accusation which you have with you. I have also found some time to practise the delivery of the accusation, according to your directions." Then follows an account of a visit of ten days with the Austins to the town of Yarmouth, with a description of the place itself. The larger part of the letter is on the politics of Norwich, where "the Cause" (Liberal) prospers ill, being still worse at Yarmouth. He has seen of Radicals many; of clear-headed men not one. The best is Sir Thomas Beever, whom he wishes to be induced to come to London and see his father and Mr. Grote. At Yarmouth he has dined with Radical Palmer, who had opened the borough to the Whigs; not much better than a mere radical. "I have been much entertained by a sermon of Mr. Madge, admirable as against Calvinists and Catholics, but the weakness of which as against anybody else, I think he himself must have felt." The concluding paragraph of the letter should have been a postscript—

> "I wish I had nothing else to tell you, but I must inform you that I have lost my watch. It was lost while I was out of doors, but it is impossible that it should have been stolen from my pocket. It must therefore be my own fault. The loss itself (though I am conscious that I must remain without a watch till I can buy one for myself) is to me not great—much less so than my carelessness deserves. It must however vex you—and deservedly, from the bad sign which it affords of me."

On his return from France, he resumed energetically the task of home-teaching, making a great improvement in the lot of his pupils, who were exclusively under their father's care in the interval; for while he scolded them freely for their stupidity and backwardness, he took pains to explain their lessons which their father never did. He was kept at this work ever after. I remember on one occasion hearing from Mrs. Grote that she had turned up an old letter from James Mill, in answer to an invitation to John to accompany Mr. Grote and her on a vacation-tour; the reply was that he could not be spared from the work of teaching the younger children.

The *Autobiography* gives a full account of his acquaintances among the young men resident at Cambridge, who afterwards came to London, including, besides Charles Austin, who was the means of introducing him, Macaulay, Hyde and Charles Villiers, Strutt (Lord Belper), Romilly, &c. There is no mention of his having gone to Cambridge in 1822, on a visit to Charles Austin. The contrast of his boyish figure and thin voice with his immense conversational power left a deep impression on the undergraduates of the time; notwithstanding their being familiar with Macaulay and Austin.

I alluded, in my last article on James Mill, to the persistent attempts of Professor Townshend of Cambridge to get John entered there. Here are two sentences from a letter dated March 29, 1823, two months before he entered the India House. "I again entreat you to permit me to write to the tutor at Trinity to enter your son's name at that noble college. Whatever you may wish his eventual destiny to be, his prosperity in life cannot be retarded, but must on the contrary be increased by making an acquaintance at an English University with his Patrician contemporaries." Whether it would have been possible to induce his father to send him to Cambridge, I very much doubt. I suspect that, of the two, the son would have been the more intractable on the matter of subscription to the Articles. Ten years later, it was an open question in the house whether his brother Henry should be sent to Cambridge.

A. BAIN.

(To be continued.)

V.—DEFINITION *DE JURE* AND *DE FACTO.*

THE extent to which the custom prevails of using simple, wide, unqualified names for classes which are less simple and narrower, is one of those facts which are granted so easily in theory that in practice they are often forgotten. It is of course closely bound up with our habit of using incomplete, in place of complete, definition: it proceeds from the same causes and is apt to lead to much the same results. Sometimes through ignorance that narrower classes exist, sometimes through carelessness, sometimes through a real need for saving time, givers and users of names are commonly content if the names are sufficient to connote only a part—generally the most superficial and striking part—of the group of attributes actually belonging, or afterwards supposed to belong, to the class named.

But whatever may be urged in favour of the custom on the ground of economy of time and trouble, the risk encountered —the price paid for convenience—is worth considering. The risk is a double one: first, ambiguity may arise, and secondly the remedy applied may be almost worse than the evil. When a class to which a name is already appropriated is discovered (or remembered) to possess more numerous attributes than are strictly implied in the name—no less than when its real attributes are found to be incompatible with its nominal ones—a troublesome contradiction results: the class that strictly corresponds to the name is seen to include members which in popular usage are (sometimes expressly) excluded. Things which are clearly not-A are seen to be as clearly A.

Familiarity with the danger seems to have bred contempt for it. Some writers, no doubt, outwardly deplore the fact, but they do not seem impelled to find a remedy. Some of the less scientific are content to throw the blame on Logic and to leave it there: others *(e.g.,* Sir Wm. Hamilton) whose profession prevents this escape, at least in its outspoken form, satisfy themselves by simply calling the contradiction hopeless: but very many take one side or the other in controversies where it occurs, with as much serious conviction as if the terms employed were not at all ambiguous.

We are seldom distinctly put on our guard against it. Even Whately, who has neglected the subject of Fallacies less than most writers, is content to dispose of this kind of ambiguity in one short paragraph. Instances of ambiguity, to be noticed and remembered as such, must be obvious and striking, and although the transparency of double meanings has undergone much increase since Aristotle's time, many that were thought by him worth mentioning being now incapable of seriously puzzling a child, yet this particular class of them has hardly yet emerged sufficiently into recognition to have received the express notice it deserves. In its finer shades it is too subtle to have attracted much attention from those whose interest, or the interest of whose audience, in the subject, is of the usual half-playful kind.

Just in proportion to its subtlety is, of course, its harmful influence on thought. I think it could be shown that many of the intricate questions which are still often called 'open,' really owe their vitality to its presence: but, however this may be, the fact that the ambiguity can possibly exist at all is sufficient justification for a survey of the means by which, in these cases, definiteness may be attained.

The term, then, having two meanings, one of them must be given up. To achieve definition, it is necessary to choose between two courses: we may either (1) sacrifice the strict connotation-meaning to that prescriptively acquired through the denotation, and keep the name in question for the objects which it has been used to denote, refusing it (at least in its unqualified shape) to the wider class; or (2) we may sacrifice denotation to connotation, and qualify the name in its application to the narrower class. The only third alternative is to invent a new *set* of names, but this may in most cases be disregarded, owing to the practical difficulty of introducing so complete a change.[1]

The practical difficulty applies, though in a less degree, to the two courses first mentioned, and the large amount of this kind of ambiguity that does exist in language perhaps shows that the world on the whole prefers the less immediately troublesome plan of letting the wheat and tares grow together, and fight the battle out between themselves. Yet numerous examples can be found of attempts to employ each of the two methods: we shall see that, where they have been rivals, sometimes one sometimes the other has triumphed—in the sense, that is, of winning fairly wide acceptance; and that, as to their success in removing ambiguity, the second though complete is to some extent impracticable, while the first is never more than a temporary relief, often no real relief at all, and always liable to establish an evil that may be regarded as worse than ambiguity itself.

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[1] The artificial system of naming in Botany (*e.g.*), which has been growing in strength and completeness ever since the time of Linnæus, may appear, although aimed at prevention rather than cure of ambiguity, to point to a possibility of even complete regeneration. But it is very doubtful whether this method could ever meet with acceptance in any department of knowledge which is not given over to specialists. It has been tried on the wide scale many times in the past, and has always died a natural death. Witness the labour thrown away on the ingenious system of Bishop Wilkins, or on those of some of the numerous inventors mentioned in De Morgan's *Budget of Paradoxes.*

The field of Ethics probably supplies the most frequent instances of distinct and firm refusal to employ a term which has been used for one class, in joining to that class another formerly excluded. And one obvious reason for this is no doubt the fear, which everyone must have sometimes felt, that the classing together, even for any purpose, two kinds of acts one of which is 'right' and the other 'wrong,' may have a tendency to obscure the distinction between right and wrong themselves. Even J. S. Mill, for example, who cannot on the whole be accused of a sentimental shrinking from truth on account of its possible immoral consequences, distinctly refuses, as many people before and since have done, to class together all voluntary acts under the name of 'interested': but since voluntariness implies choice, and choice implies belief (conscious or unconscious, mistaken or not) of total preferability *for the chooser*, there can be no doubt that in every voluntary act the agent follows (in many cases, however, unconsciously) his own apparent interest. If anyone demur to this, it can only be to the use of the expression 'apparent interest' for *unconscious* self-seeking, and just here lies the root of the matter:—judging by connotation 'apparent interest' is *simply* that course which appears preferable to the chooser (including both the cases where he is, and where he is not, conscious of the preferability); but since it is only lately that attention has been much directed to the instinctive and unconscious side of our nature, the possibility of acts 'appearing preferable' to anyone without his being distinctly aware of the fact and reflecting on it, has not obtained recognition in our language: we have improvidently applied the name which by its connotation should belong to the larger class (the conscious and unconscious belief together), to that smaller portion with which we were first acquainted, and now the term has won a prescriptive right to denote that portion only. Hence, many careful writers will not allow us to name the larger class at all: in spite of all modern theories as to the connexion between instinct and reason, a hard and fast line is to be drawn at deliberate recognition, and nothing 'appears' to anyone except what he reflectively knows to appear.

Here may be seen a case where the two rival methods for avoiding ambiguity have each found their adherents, producing the two hostile camps in a well-known controversy, and where the result of employing the first method consistently would be—as it must always be—to close the path against new discoveries. It may be noticed that here, as in all those sciences in which (probably owing to their complication and uncertainty) 'common-sense' is popularly preferred as a practical guide, the attempts to employ the second method have for the most part met with slight success, and the new nomenclature has been the property of a clique rather than universally accepted. The immense difficulty of changing purposely the denotation of any term in popular use without plainly and popularly showing some practical object to be gained (other than the mere improvement of language), is a perpetual hindrance to its application. Another hindrance is the absence of any widespread recognition of the world's continual mistakes in classification and naming.

Accordingly, for examples of the successful employment of this method, we must look, not to Ethics, but to those sciences which have fairly succeeded in establishing their popular reputation for practical value, and in which also there is less possibility of a too flattering opinion of our own attainments; for where we distinctly feel our ignorance of facts, we are more content to leave classification and naming in the hands of those who have made the facts their study. When such names as 'planet,' or 'salt,' or 'acid' (to use stock examples), come before us, there is a tendency to rely, for their strict interpretation, on the definitions agreed upon by men of science.

The history of the term 'planet' will to some extent serve as an example of the application of the second method. Before the time of Copernicus the earth was of course excluded from the class of 'planets': whatever may have been the complete list of the properties actually supposed to belong in common to the members of the ancient class, the name (as usual) gave very little information about them, the property of 'wandering' being the only one expressly connoted.[1] When, therefore, owing to the new explanation of the facts observed, the value of the old classification was overthrown, and it was thought that a more useful distinction would be that between fixed stars and moving ones, the denotation-meaning of 'planet,' which excluded the earth, was forced to give way to the connotation-meaning (or rather to the only surviving shadow of it), and the new class was called by the name which the old class had formerly possessed.

The terms 'salt,' oil,' 'acid,' and 'alkali,' often quoted as instances of *change* of meaning, may be viewed rather as cases where, although there has been some change, the original meaning has been more closely adhered to than has the actual class of things meant. For in all these cases the denotation-meaning has had to give way, and the class to take in new members formerly excluded, on the discovery of the possession by other substances of qualities *closely resembling* those originally connoted. Here, however, there has been no lasting controversy: the facts are comparatively simple and were well understood, and here, consequently, the names have had to adapt themselves to the facts, instead of standing in their way and making the facts still more obscure. As before remarked, it is in the more complicated and difficult sciences of Conduct, Life, Mind, &c., that we shall find the best instances for our purpose.

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[1] It is probable that those who gave the name intended something more than merely change of place; the apparent irregularity of the movement was, no doubt, the striking circumstance, and the intended distinction that between such bodies as moved erratically and such as did not. This fine shade of difference, however, between 'wandering' and 'travelling,' appears to have been lost sight of in later times.

Take the Free-Will Controversy. How is it that in many quarters there is so strong a disinclination to class voluntary with involuntary action, under the name of 'determined'? Clearly because that term, (and still more completely, 'necessary') and its contradictory 'free,' have gathered round them a narrower meaning, through their denotation, than their simple connotation would suggest. Since voluntary actions are obviously free from the only form of compulsion that Law and Morality are concerned, for purposes of punishment or exhortation, to recognise, these comparatively superficial needs were satisfied by the employment of the terms in the more restricted sense: and now that it is guessed that voluntary and involuntary acts may properly be classed together as opposed to 'free' in a wider sense, we are left with no word (or the doubtful possibility of introducing an entirely new one) to mark unambiguously their point of resemblance. If the first method be employed consistently, we must continue to shut our eyes to the now very probable fact that voluntary and involuntary acts are alike in being due to 'natural causes' and therefore increasingly predictable.

Again, as already indicated, the dissolution of old rough-and-ready barriers which must follow in the train of the Evolution Theory, is continually producing the same difficulty. If, for instance, we want a name to express the result of all that an individual has passed through, from the time when he existed only in the person of his remotest ancestor, there is in strictness (*i.e.*, by its connotation simply) no name so fit as 'experience'. We need not, indeed, suppose that Hume and his contemporaries, or even J. S. Mill, saw clearly their need of extending the name 'experience' beyond its denotation-meaning. But it can hardly be doubted that they *felt* the need of a wider name, and felt that there was no other name so suitable.

Numbers of words, too, such as 'belief,' 'memory,' 'knowledge,' 'perception,' 'feeling,' 'motive,' 'deliberation,' 'resolution,' 'volition,' 'intention,' 'desire,' &c., have been by custom applied to the conscious end of the scale only, and now we are practically compelled either to employ each of these words both in the wider and the narrower meaning, or refuse to group together acts and states which are alike in every point except the degree of consciousness of the agent.[1]

Again, the whole question of Causation is full of these ambiguities. 'Invariable antecedent' strictly includes, but by custom excludes, the notion of unconditionalness: 'cause' strictly includes the notion of efficiency, but by definition, to suit the denotation, excludes it: if 'energy' had been defined only by assembling the particulars, and if we had refused to bind it together with its apparent contradictory, the Law of Conservation could never have been stated. 'Chance,' too, is excluded by the Law of Causation, and yet every time that a coin is tossed up, it is a 'chance'—in the narrower meaning—which side will come uppermost. 'Miracles,' in the widest sense, are excluded by it, and yet everything which contradicts the laws of nature as known to the human ignorance of any period, is in the narrower sense a miracle. The best inductions are 'certain,' in the sense which corresponds to the actual denotation of that term, and yet in its strictest connotation-meaning they are uncertain: they are more than 'probable' in one sense, and only probable in another. 'Impossible,' 'inconceivable,' even 'infinite,' have their wider and narrower meaning, and all these have accordingly become centres of much controversy and bewilderment that might otherwise have been avoided. Readers will remember the long list of contradictions, turning chiefly on the word 'infinite,' drawn up by Sir William Hamilton.

In every department we find the same. 'Law,' 'right,' 'obligation,' &c., have each their double meaning; and here may be seen a case where (since Austin's time at least) the denotation-meaning has on the whole won a firm footing, and yet has not succeeded in driving the connotation-meaning entirely out of the field.

Again 'subjective,' in Metaphysics, sometimes includes, sometimes excludes, 'objective'; 'matter' is sometimes the supposed substratum, sometimes the well-known phenomenon: and until they are appropriated firmly and consistently to one meaning only, there is clearly no hope of an end to the disputes which cluster round them.

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[1] For a modern instance of some clever and amusing acrobatic feats with these ambiguities, performed however on the whole in the service of truth, the reader may be referred to Mr. S. Butler's *Life and Habit;* and although it is not everyone who possesses sufficiently the painter's disdain for accuracy of detail, to rest satisfied, as Mr. Butler is, with the somewhat cheap remark that "Nature loves a contradiction in terms," or that, if we try to be consistent, we "may be good logicians, but we are poor reasoners," yet all must agree that he has stated some of the difficulties, and implied many others, in a very forcible manner.

Before discussing the intentional re-arrangement of names, by the light of the most accepted rules of definition, it may be useful to glance at the changes in meaning, the narrowings and widenings, which are constantly taking place *without* any such definite intention. Some authorities, indeed, would tell us that this latter is the only manner in which alteration can occur. Prof. Max Müller has said:[1]—"Although there is a continuous change in language, it is not in the power of man either to produce or to prevent it. We might think as well of changing the laws which control the circulation of our blood, or of adding an inch to our height, as of altering the laws of speech, or inventing new words according to our own pleasure. As man is the lord of nature only if he knows her laws and submits to them, the poet and the philosopher become lords of language only if they know its laws and obey them." And though this is certainly an overstatement—a too literal acceptance of the epigram that language 'is not made but grows' (as may be seen from the fact that new words and modes of expression *have* been from time to time deliberately coined and gratefully accepted by the public)—yet there is sufficient truth in it to justify us in holding at least that the majority of changes are unintentional, that most changes in meaning (as in sound and spelling) take root and spread, steadily and silently, no one exactly knows how, and the fact only comes to light afterwards, through etymology and history.

Still, two main tendencies have been observed, to one or other or to both of which every individual change may be referred. The list of attributes originally connoted by a term may be either increased or diminished, or after proceeding for a time towards one of these results it may begin to move in the opposite direction. The meaning may become more special or more general, or first one and then the other.

It is not difficult to see, in the unintentional change to a more special meaning, or rather in the silent completion and establishment of that change, a striking likeness to the operation of the first of our two alternative methods. When, for instance, the meaning of 'resentment' was beginning to be narrowed down into connexion with injuries only, but while it was still possible to speak (as Barrow did) of the good man as a faithful 'resenter' of benefits, and of the duty of 'testifying an affectionate resentment of our obligations,' there was some danger of ambiguity. In order to avoid this, one meaning had to be given up, and the world has tacitly chosen to hold to the class most frequently in fact denoted and to despise the less distinctly-coloured wider attribute which the term in strict right connotes. And so with numbers of other words: the plain old meaning of 'good,' and still more of 'simple,' and of 'worthy' (as applied to persons), is fast giving way to a more complicated meaning, derived from a contemplation of the actual members of the class commonly denoted. The two latter words have for some time been, and the former soon will be, terms of polite contempt; and it is not impossible that in process of time all three may become simply terms of unqualified abuse. The history of 'silly'—derived from *selig*—and of the modern German *schlecht*—which a few centuries ago meant *good*[1]—will show what extreme changes in the meaning may be brought about by seeking for it chiefly in the members of the actual class from time to time believed to correspond with the intention of the name.

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[1] *Lectures on the Science of Language* (1862), p. 37.

Equally noticeable, though not so complete, is the likeness between the second alternative plan for avoiding ambiguity, and the silent unnoticed change towards a more general meaning. The likeness is not so complete because here the connotation becomes actually smaller than it was originally, and the moving cause is rather the desire to name, and classify conveniently, existing notions, than to select and fix notions for existing but ambiguous names. But they are alike in one important point—the prominence which they give to connotation. Many cases of this change are, no doubt, directly the result of metaphor or poetry, as, for instance, in the words 'derivation,' 'to govern,' 'to equip,' or 'sphere'; but the use of metaphor itself springs from nothing else than a vision—often dim, or fanciful, or even false—of the hidden attributes which seem to underlie the more ordinary meaning and bind together classes commonly supposed to be in serious fact exclusive. It is because attention is paid to the attributes intended, rather than to the actual objects at any time believed to possess them, that new objects can be received into a class; it is when we think of the attributes rather than of the actual members, that the difficulty of drawing hard and fast lines begins. Man and beast and vegetable seemed much more clearly separated when people were content to 'know them by sight,' and before we had begun to puzzle over their exact points of difference and similarity.

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[1] Mentioned by Professor Max Müller: *Lects. on Science of Lang.* 2nd Series, p. 248.

It appears, then, to be almost a matter of chance, that is to say, of complicated and untraceable causes, whether in remodelling any old classification, the public will be most inclined to preserve the denotation or the connotation of existing names. The most we can say is that specialisation appears to have happened wherever the denotation has been prominent,—where the class of things is (superficially) easy to distinguish, and therefore distinctly conceived in extension, and not liable to be disturbed by the applications of doubtful claimants for inclusion—wherever, that is, there were other marks more convenient than the connotation, by which to recognise the members of the class: and generalisation to have happened where the reverse has been the case. But which of the two results is either preferable, or on the whole actually preferred, is at first rather difficult to see.

Nor do we get much help towards finding out definitely which course we ought to take, from those who have written upon the subject. Mill's chapters, in the *Logic*, upon Definition and the Requisites of Language, useful and interesting as they must be admitted to be, are to some extent spoilt by the inconsistency with which, after having all through his earlier portion insisted on the all-importance of Connotation, and refused to allow to Denotation *any* part in 'meaning,' he finally decides that in many cases we cannot stand out against the denotation-meaning, but must accept it, and enforce it, whenever we think the change is already "irrevocably effected". It is disturbing also, to those who would be glad to know the purely logical bearings of the question, to find themselves warned away from "the shallow conceptions and incautious proceedings of mere logicians," and to see held up to gentle scorn "persons . . . whose leading and favourite idea is the importance of clear conceptions and precise thought". The sum of his advice apparently is,[1] that we should define, if possible, so as to prevent "the changes which usage is continually making in the signification of terms," and where this should seem no longer possible (towards deciding which question no advice is given), there we should submit "with a good grace," and, *if a definition is necessary*, define the word according to its new meaning. Try, that is, to avoid, in these cases, defining at all; but where definition should be forced on us, define to please the newspapers, and pretend to be pleased ourselves.

Now, passing over the difficulty, and in its finer shades, the impossibility, of knowing when a change *is* irrevocably effected, is it not probable that, in many cases at least of the firm establishment of a more special meaning, the old general meaning can never be really lost—that if we recognise the pretender, we shall only produce the confusion of a perpetual civil war? Try to apply the rule to actual cases of narrowed meaning, and we shall often find ourselves left with no name except the same one for the wider class. Try it with the term 'expedient,' or 'useful,' or 'necessity,' or 'certainty,' or 'pleasure': the attempt has in fact been made, over and over again, and some of the most undying controversies in the world bear witness to its failure. Or, to take an instance of specialised meaning mentioned in another place by Mill[1] himself: "Every word which was originally intended to connote mere existence, seems after a time to enlarge its connotation to *separate* existence, or existence freed from the condition of belonging to a substance,"—and if we should authoritatively define 'to exist' or 'entity' in this narrower meaning, is it not clear that when next we might have occasion to speak of the wider class we should find ourselves compelled to use the same word for it, and involved in endless ambiguity? It is true that by coining new terms—as 'entity' was itself invented when 'being' in the wider sense was discarded—we may stave off the difficulty for a time; but it should not be forgotten that, however fertile our invention may be in creating new names, our power of intentionally bringing them into circulation is limited. And besides, granting even unlimited power of doing so, we should only be throwing our babies out to the wolves; the ambiguities would overtake us again before long, and the three stages of danger, sacrifice, and temporary safety, would have to be repeated for ever, loading the language with ever fresh supplies of synonymous, and therefore confusing, names.

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[1] Bk. IV., end of Chap. v.

Professor Bain's suggestions[2] give even greater weight to the Denotation. We must "assemble for comparison the particulars coming under the notion to be defined," with the aid of those coming under the opposed or contrasting notion. "By the particulars are meant, not every individual instance, but *representative* instances sufficient to embrace the extreme varieties." We are then to cut off corners from the irregular mass, and to fill up its gaps, only *if need be* departing from the accepted denotation, "leaving out some instances and taking in others, until we form a class really possessing important class-attributes".

It will be seen that this method amounts on the one hand to an earlier yielding to accomplished facts, and on the other hand to a greater interference with them afterwards, than Mill would consider necessary and advisable. Mill recommends us to hold out against merely prescriptive right until our chance of successfully doing so is gone, and then to yield with a good grace, but Professor Bain would have us go more than half way to meet the usurper, and then try to buy him off with a compromise. Accordingly his plan is open to all the same objections as Mill's with the exception of the difficulty of deciding when we are beaten, and with the additional objection that, whenever we might arrive by means of it at a definition differing from Mill's, such difference would consist in its being less in conformity with actual usage, and therefore more difficult to introduce. Both plans are alike in being makeshifts, and hardly more than this seems to be claimed for them by their advocates. And in both there almost appears to be a tendency to confuse might with right.

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[1] *Logic*, Book I., Chap. iii.

[2] *Logic*, Bk. IV., Chap. i.

Of the numerous cases in which the narrow boundary between 'is' and 'ought to be' needs careful watching, the fixing of a definition is one of the most ensnaring. For one reason, the identity of the language in which it is usual to frame both questions, helps to keep confusion alive. 'What is the definition of this?' or, still more, 'How would you define that?' may mean either 'What *is* the connotation given (dimly) to the name by a certain (vaguely limited) set of people?' or 'What *ought to be* the connotation given (less dimly) to it, by all who intend to make the best use of language?'

But even supposing this preliminary danger avoided, and the question clearly stated as an attempt to find what ought to be, the same confusion will probably arise again in deciding upon the answer. And there is some excuse for it: the originators of words, as we have already noticed, have often been unable or too careless to foresee all the complicated purposes which their gift would be required to serve in later days: they needed merely a means of making themselves understood at the time, and were content if the names which they gave were vaguely descriptive without being definitive. For, the purposes of classification and naming being ever less complicated the further back we look, the classes which satisfy one generation are not only less intricate and inter-dependent, but more roughly conceived and readily accepted than those which are needed to satisfy the next: the difficulty of identification does not appear to have sat so heavily on our ancestors as on us. Hence, we are saddled with words which ought to mean (and to some extent do mean) one thing, and which do mean (and perhaps *therefore* ought to mean) another; and we have to determine which of the two meanings—*de jure* or *de facto*—'ought to be' allowed to remain; to decide how far the founders' intention is really binding on us now.

In this perplexity, it may be of importance to bear always in mind the main fact which the above illustrations show—that, whether through carelessness, ignorance, or economy, most general names have been *incorrectly* applied to the things which they are actually used to denote: that though they are always given for a purpose, this purpose is seldom completely, sometimes not at all, fulfilled. The classes of things denoted by a name in successive periods of time may almost always be regarded as a series of more and more nearly, but never quite, successful attempts to find things really corresponding to the notion:—'pleasure,' 'happiness,' 'good,' 'useful,' 'expedient,' may be mentioned as instances. If *attempts* be too strong a word to use for the numerous cases where failure has been due to carelessness rather than to ignorance—where we *knew* that the class was narrower than the name, but sacrificed correctness to convenience—we may at least look on the successive lists of things denoted as records of the lessening distance from correctness that our growing appreciation of what constitutes the truest convenience has allowed.

The fact that general notions are abstracted from perceptions of concrete things, may appear to contradict this view, as it undoubtedly contradicts the ancient error of Realism. It has been often said, and oftener implied, that notions are limited by things and can never rise beyond them; that there is always, as Whewell puts it, "a tacit assumption of some proposition which is to be expressed by means of the definition, and which gives it its importance"—that the notion 'life,' for instance, must include waste and repair of tissue, or growth, or decay, or death, or some one at least of the well-known facts which are found to accompany every form of actual life that we have examined. But would it not be more nearly true to say that in no single case is the notion actually limited by the things from which as a historical fact it was drawn; that it is always slightly in advance of them, more ideal, slightly an exaggeration, that is, of the attribute which they actually possess in common? The familiar instance of the notions in Geometry will be sufficient to prove that we can and, in some cases, do habitually raise an ideal beyond the parent facts: if we were to 'assemble for comparison' all the lines and points and circles in the actual world, however many excrescences we might afterwards pare away, our definitions would still have to mark *some* breadth, some parts and magnitude, &c. The tendency to generalise beyond our warrant is (for good or evil) as human in the formation of conceptions as in discovering the laws of nature.

But whether or no every general notion is ideal (in which case we may perhaps cease to deride Bacon for his speculations on the nature of heat), it is enough for our purpose here if any are. For in those cases we must set up the ideal connotation, not that corresponding to the actual things originally denoted, as the object of our search, if we wish to find the meaning of the name—the purpose for which it has been always (more or less loosely) given: and when found, even if only by approximation, we must employ this ideal as the test by which to try the strictest right of any class of actual things to enjoy the name in its unqualified shape. We do this when we say that it is only 'practically' certain that the sun will rise to-morrow, or when the *minimum visible* is admitted to be only an approximation to a 'point'. Can we not also do it in the other cases?

To take again some of the instances mentioned above: the distinction between 'interested' and 'disinterested' was evidently made to mark the presence or absence of *conscious intention* to follow one's own interest, since at that time the possibility of the existence of a state of mind resembling 'intention' (denotation-meaning) in everything except the degree in which the intender recognises it, was hardly seen: the same distinction would now be as clearly marked as in the present state of knowledge it can be, by the terms 'consciously' and 'unconsciously' interested. The distinction between 'experience' and its contradictory was evidently meant to mark off from the universe the events that any individual had passed through *after* birth (or possibly after conception), since the continuity of the individual with his ancestors was at least not considered to be sober fact: the same distinction would now be achieved by 'pre-natal' and 'post-natal' experience. The distinction between 'free-will' and its opposite was meant to mark off such acts as might be prevented by the fear of punishment from such as could not: the same distinction would now be accomplished by substituting for 'free' as an explanation of 'voluntary' the narrower term 'practically free'.

Seen in this aspect the search for the strictest meaning acquires a clearer character, and the assembling of particulars loses its exaggerated importance. It is important, certainly, and can by no means be dispensed with: but it is now seen to be only the first step, not the chief part of the process. The really important thing is seen to be not the list of things that have somehow won the name, but the *reason* which (whether through mistake or carelessness or not) accounts for their having done so: and what importance the former has, is seen to depend on its being a guide to the latter. We cannot consistently set up as the chief and ultimate aim of our search both the list of things that *have* won the name and also of those that *ought to have* won it. Compromise, as usually understood, means nothing more than uncertainty and irregularity of plan. If we admit the necessity of compromise (except in a sense to be presently suggested) we leave just the very question undecided upon which the whole search turns. We leave it doubtful, before trying to reach them, whether the grapes are sour or sweet.

It would no doubt be inconvenient to use the longer expressions always: the simple, unqualified ones would be generally sufficient. Perfectly precise language must always be more lengthy than epigram, and it is probable that, however much mechanical or other improvement may in the course of ages be made in facility and quickness of writing, and even of reading and speaking, there will still be a quicker method beyond—namely to drop so much of the precision as may be found on the whole superfluous. And hence a habit is formed of using the more rough and ready language, the convenient substitute for precision, until at last the substitute usurps full powers, gains a prescriptive right to rule our thoughts, and any attempt to restore precision and to point out to convenience its proper place, will be called pedantic or unpractical.

In fact, the need for avoiding pedantry and saving time would be an insuperable bar to a habit of duly qualifying all our general names. But it need be no bar to a habit of remembering that in strictness they *ought* to be so qualified. There is a tendency to think that because "what is present everywhere, once recognised, may be everywhere suppressed," therefore what is once recognised as present everywhere may be ever afterwards considered everywhere absent; and all that is necessary to correct this tendency, is to translate the second 'everywhere' into 'for many practical purposes,' and then to make clear what those purposes really are.

The necessity of compromise, for certain purposes, must be admitted; but it may be worth while to consider what those purposes are, and whether no alternative plan of meeting them can be devised. Is there perhaps, in these cases, a *modus vivendi* to be found, for both convenience and precision; a means of preserving both without their clashing, and of limiting each to its proper use?

Perhaps, instead of basing the entire process on compromise, instead of depressing our whole search for the best possible definition by the fear that, even if really found, we should not be able to bring it into daily use—thus searching for the best that will probably be allowed, while pretending to search for the best of all—it might be more consistent to institute two separate searches; first, for the really best definition, and, when that is discovered, then secondly to find how much accuracy must be surrendered, and *on what occasions*, in order to meet the business-requirements of the world. The ease with which we do this in Political Economy, where such terms as 'wealth,' 'capital,' 'value,' &c., have a wider meaning than that in common use, seems to afford a precedent pointing to success. We should thus have two different phraseologies, one for the rough purposes of daily life, and the other for serious discussion and hard reasoning, the former inaccurate but convenient, the latter inconvenient but as strictly correct as possible.

If for instance we were to use, for ordinary purposes, the terms 'voluntary,' 'experience,' 'disinterested,' &c., in the ordinary acceptation, but at the same time form a habit of remembering that in strictness 'disinterested' acts are 'unconsciously interested,' that the events which happen to an individual after birth constitute only his 'later experience,' that 'voluntary' acts are only 'practically free'; on the one hand, believers in determination of the will, necessary egoism, or the explanation of all knowledge by experience, would be themselves guarded from the errors—which ill-considered opposition often helps to drive them into—of fatalism, belief in universal conscious selfishness, or disbelief in *à priori* knowledge; and on the other hand their opponents would see, more clearly than at present, that these three latter theories are all that anyone is really concerned to deny.

ALFRED SIDGWICK.

VI.—THE PERSONAL ASPECT OF RESPONSIBILITY.

FEW things are more universally taken for granted than the high moral value of a belief in personal responsibility, and any one venturing to call in question not merely the scientific validity but the ethical excellence of any of the several assumptions grouped in such a belief, is likely to be vituperated without a hearing. Nor without reason; for when the moral title of a principle hitherto deemed fundamental is suddenly questioned, men's consciences experience a painful and possibly an injurious shock; and the indignation with which such questioning is met, or the reluctance with which it is tolerated, is due to a useful and perfectly justifiable instinct of moral self-preservation. People are wholesomely afraid of the consequences of being forced into impromptu defence of principles long regarded as so vital or so self-evident as to be independent of logical support; and nothing is more reprehensible than a wanton spirit of criticism which chooses to air its plausibility in the depreciation of beliefs closely concerning the higher emotions of those who hold them. The reformation of moral principle is not effected suddenly or by force of argument, but is brought about slowly and silently, as it is needed, by the gradual working out of that social development which it appears to be its function to subserve. Any, therefore, holding an opinion distinctly opposed to a belief that passes muster with the public as necessary to the maintenance of practical rectitude, may well refrain from its premature expression as needlessly heretical: likely, in fact, to prove prejudicial to the popular acceptance of some greater truth on the admission of which it logically follows.

Nevertheless, occasions sometimes arise when the explicit repudiation, not of principles, but of current shibboleths which are mistaken for them, is clearly needed, in order to vindicate from inconsistency, or to rescue from misuse, some such greater truth which *is already* before the public, and which, when so vindicated, may itself operate powerfully as a reforming influence on a community recognising its bearings.

That such an occasion exists at present is indicated by the somewhat querulous discussions with which the air is rife, touching "mechanical" morality, and that discouragment of individual virtue which is supposed to follow on a belief in the modern theory of the natural evolution of society. It is certain that if ever the evolutionist's creed is to precipitate its principles in the practical form of a code, it can only be after a fair facing and resolution of the grave ethical difficulty which stands at its very threshold.

This is, of course, nothing less than the old difficulty about free-will and responsibility. To believe in a perfectly regular, not-to-be-suspended and not-to-be-hastened order in the phenomena of human development is to believe in the "necessary" character of every one of those benevolent impulses and beneficent actions which arise in the process of that development, and to which men have been accustomed to attach something of value over and above their mere social utility. When to the theory of social evolution we add the modern scientific views respecting the physical relations of consciousness, the logical resources of the belief in responsibility are further weakened, since such views undoubtedly tend to sweep aside as chimerical all ethical standards based on freedom of the will, reducing the loftiest and most far-reaching moral efforts to the irresistible reaction of a complex automatism or stimulus of which it had no share in the institution. In the temporary oscillation of the moral compass which ensues on the full perception of this aspect of scientific conclusions, it requires the strongest philosophic faith in the utility of truth to remain sure that whichever way the battle goes with reference to the precious doctrine, the popular conscience will emerge from the conflict unscathed. Science must develop, and society must develop; and, at first sight, it appears that the only road along which they may peaceably progress together lies directly through the scientific justification of a belief in personal responsibility. Science, however, having already virtually discredited such a belief in her deliverances touching the genesis of morals, we find even philosophers, here and there, standing somewhat aghast in the presence of the considerations they have brought to light.

Does the salvation of conscience, then, depend at all on the precarious possibility of unravelling this gordian knot? Must an argument which should make short work of it by cutting it cut humanity at the same time adrift from its social and moral moorings, and expose it to wreck and ruin? I believe not. Nay, if truth demand the cutting of it, I am *sure* not; for truth ever remains the ultimate level upon which conscience and intelligence meet, and on reaching which each recognises in the other an invaluable ally. If the discovery of truth be intellectually excellent, none the less are its recognition and application morally so. Moreover, the welfare of society depends on no shifting sands of theory, but has its unseen anchorage in the profound depths of that irresistible impulse common to all organised existence, society included, to make for its own maintenance and further development. If the functional basis of morals be the perpetuation of this development through the development of social tendencies and sympathies in individuals, the security of morality may be at once inferred, even in the event of our having to give up the precious belief in our own *personal* deservings.

For such and little else is the belief in responsibility, if we strip it of all implications other than those which are threatened by science. Science has no word to say against the practical part of the doctrine. It is pure nonsense to assert that a man can only justly approve or disapprove his own or his neighbour's conduct, or must only allow such approval or disapproval to influence his further dealings, so long as he believes his own and his neighbour's conduct to be supported, each on a lever without a fulcrum—on a self-originating volition which might as well have been one thing as another. What possible connexion is there between the two propositions? Why should the appropriateness of moral approval, or of the practical linking of this approval with retributive dealing, be represented as dependent on whether or no the antecedent conditions of conduct had a beginning in consciousness? It is to me surprising that out of a doctrine which makes a point of extending the sure foot-way of continuous causation into the field of mental phenomena, and which throws some explanatory light on the meaning of virtue and the conditions of progress, men should have extorted the strange corollaries that it is useless to try and be good, and unreasonable to dislike or resist what is bad. Is a watch that won't go the less a *bad* watch because it neither made itself nor wound itself up; or because its bad going is the *mere* result of bad spring and wheels? Shall we, on this account, disapprove it the less as a bad goer, and hesitate to take it to a watchmaker, to be put right if possible, and to be dishonoured and discarded as rubbish if incorrigible? Is a bad man the less a bad man—the less an unfit social influence—because he only follows his bad will, and did not originate it? Are we for such theoretical reasons passively to endure the results of his ill conduct, or to deem ourselves unjust for reprobating it and dealing with *him* in any way we believe fittest for reforming his will, or at least rendering it socially inoperative? Happily for society, men's morality does not depend on their lucidity of intelligence, and the occult process of reasoning which issues in such inconsequent conclusions, even if it could be demonstrated, could never be acted on.

The real moral lessons conveyed by a belief in determinism —in the connexion of every volition with certain antecedents uncontrolled by any previous volition of the agent, appear to be mainly these:—(1) In awarding our moral approval or disapproval we ought never to consider any one "by name," so to speak; but in every case our judgment (of ourselves as of others, of others as of ourselves) should be strictly proportioned to the social value of the principle evidenced in conduct, no admixture whatever of any personal favour or dislike being allowed to emphasise either our judgment or its expression. (2) Our rewards for virtue must be *real* encouragements, and our punishments of vice *real* deterrents, following the laws (so far as we know them) of volitional conditions, and not merely arbitrary symbols of our approval or disapproval, however just these latter may be. We are not to hate the man whose dominating tendency induced him to[1] "fix his attention" (*i.e.* to *will)* wrongly, but we may *disapprove* him, inasmuch as we are a part of the society he hurts. Further, seeing that certain conditions, hitherto absent, may induce a future beneficial modification of his will, we may, so far as we disbelieve in the power of that will to resist such conditions when really presented, rationally set about instituting them, in the shape of new fears, new deprivations, or new hopes and inducements. The morality and philosophy of the matter fit like hand and glove.

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[1] *Vide* a published lecture entitled "Is Man an Automaton," by Dr. W. B. Carpenter.

Nevertheless it is commonly assumed that the mere recognition that we are virtuous of necessity, when we are virtuous at all, is sufficient to remove that necessity and to render us vicious. It is only when we discover that the surplus value which rectitude is held to possess (beyond its social fitness) is the value it possesses for its follower *as differenced from the community* to which he and his conduct belong, that the reason of this apprehension dawns upon us. Nine times out of ten when a man speaks with unction of his responsibility, he is influenced, consciously or not, by a consideration less of his conduct than of his credit: less of the actual human worth of the deed or of the existing need for its performance than of its adventitious reflection on the baptismal name of the doer. This is no sneer. I think the phraseology of the subject bears me out. We hear of "shrinking from responsibility"—"disclaiming responsibility," and so forth, but not from great helpers, great saviours, or great reformers of their generation. These fix their gaze intently on the unrecognised truth which needs a preacher, no matter whom, or the stern duty which needs a performer, no matter whom, and fling themselves into the saying or doing of it with no thought of their *personal* responsibility.

It is scarcely sufficiently recognised in ethical discussion that the moral abstraction hidden away in the term Responsibility is in reality a compound of truth and fiction, and that (owing possibly to the long connexion of morals with theological beliefs) the fictitious element alone has been taken into account in the naming. Discriminating between the several and widely dissimilar ideas commonly present when personal responsibility is predicated of conduct, we find that the valuable element receives at the hands of the evolutionist not merely corroboration, but lucid interpretation. This valuable element is the recognition of the vast and permanent importance of all acts and forbearances: the dependence of weighty social consequences on the force and direction of human effort, and the appropriateness of a moral valuation of each man by himself, as by his fellows, strictly following the social quality of his deeds and tendencies. On the other hand, the distinctive part of the doctrine—all, that is, that distinguishes it from the moral lessons deducible from the doctrine of invariable physical causation—takes note only of the individual aspects of conduct; and so, is not, strictly speaking, *moral* at all. The tendency of the current commonplaces about personal responsibility is to insist, less on the virtue and healthfulness of truth, self-restraint, benevolence or industry, than on the merit of the person exhibiting such virtues: less on the evil to society of dishonesty, cruelty, sensuality or idleness, than on the "answerableness" (whatever that may mean) of the sinner. The point about which so much metaphysical dust has been raised proves in the last resort to be one of those purely personal considerations of which moral advance consists in the gradual supersedure. Analysis discloses the heart of the dispute (concerning free-will, and the rest) to be less a question of morals than of merit.

It is at this point that we come in sight of what seems to me the moral insufficiency of the only part of the popular belief threatened by modern science.

A few brief remarks on the general character and meaning of moral progress may fitly preface what is to be said on this point; that so, having inferred the chief desideratum in any theory or principle claiming to exercise moral influence over its followers, we may observe how far the belief in question tallies with the required standard.

Broadly stated, the functional basis of morals appears to be the perpetuation of human development. This development presents itself under two aspects: (1) The evolution of society as a whole; (2) The evolution of the social or *super-personal* impulses, emotions, and tendencies in individuals. Virtue, functionally considered, amounts to the maintenance of humanity's fitness for survival so far as this maintenance may be secured by the civilisation of individuals through the medium of their own actions. That character is moral which (whatever the formulated principle recognised by its owner) issues in conduct conducive to the well-being, not necessarily of the personal agent, but of his kind: which keeps man at the head of things, and elevates his headship. That motive is moral which implies a desire to exhibit such conduct so far as the agent knows how. Just in proportion as the desires and purposes of the individual lead him to conform to social requirements, and to merge self, *the person*, in self, *the social unit*, can he obtain a virtual mastery over his conditions. Happiness consists in such mastery; rectitude, in the conformity which leads to it. The rectitude and the happiness, however, do *not* necessarily meet in the same personality; and in the artificial correction of this special instance of a naturally incomplete adaptation of our circumstances to our requirements lies the essence of all good and wise law-making, as also of the purification of public opinion, that most powerful of all social engines.

If the function of morals be to subserve the interests of the community, those motives and principles must be most moral which concern themselves most closely with the welfare of the community, and which have least regard to considerations indifferent to that welfare. The most moral belief, again, must be that which tends to the institution of such social motives and principles; and which, in its indirect effect on the emotions of its follower, brings his will increasingly under their power. Quite in harmony with this conclusion is the fact that the central principles of that large body of rules and regulations for individual consciences which the felt consequences of conduct have caused to be empirically established as right—which have been permanent and which come into increasing prominence and play wherever a community advances in coherence and organisation—have always taken form as in some sort a merging of personality. A high degree of enlightenment and prosperity, or swift progress towards it, commonly accompanies the high estimation of such principles as self-government, sympathy, and equity. The latter especially is the crowning virtue of civilisation. From first to last moral advance appears to have consisted under varying disguises in the slow surmounting, not of individual distinctions, but of *personal* considerations: in the gradual lessening of the weight of special interests, whether egoistic or altruistic, in the balance of morally permitted motives, and in increasing the preponderance of what are virtually race-instincts as a compelling agency in the conscious lives of individuals. In states pre-eminently civilised we find teachers, governments and even public opinion busy, more or less consciously and more or less successfully, with the inculcation of ends, and the institution of restrictions bearing directly on the products of individual character and conduct, as affecting the vital resources, not of the agent *per se*, but of the community; the interests of the agent being included only in proportion to his capability of development in social conditions. Society is no impersonal structure; neither as regards the requirements of its development is it a merely magnified person; but it is a great superpersonal organism into which the self-hood of every one of its units enters not merely as a modifying influence or a supplementary end, but as an essential ingredient. The requirements of society include, while transcending, the requirements of the individual; and, when supplied, yield what is *felt* as an improved quality of happiness (though seldom as an increased quantity) to each individual who lives in practical recognition of his share in a larger life than his own. The most virtuous man is he who is able habitually to regard, and to deal with himself, his friend, his enemy, and a stranger from the same standpoint; that is, from a point where these distinctions of self, friend, enemy, and stranger disappear, along with the special emotions belonging to them, in the distinction each assumes as a better or worse social member to be judged and treated by a human test alone, as if nothing more circumscribed than the whole future of the whole race were concerned in the matter. The most moral valuation of personal morality must be that which regards conduct exclusively in its super-personal or social aspect, and which disregards its emanation from or reaction upon a given agent otherwise than as he too is a part of that whole his conduct must affect.

Provided with this test, if we return to the belief in personal responsibility, we find that, so far as it means a belief in the proper merits or the proper rights of persons, it falls *morally* short. For instead of placing the impulse to self-service or to self-sacrifice, as such, under orders to the dictates of the impulses conducive to race-preservation, it tends directly to reverse the process; and so far as it confines attention to the real or supposed reaction of conduct on the *personality*, as distinguished from the *humanity* of the agent, it does so at the expense of that purely social valuation of individual conduct, on the unbiassed integrity of which a true morality ever insists. Humanity suffers or may suffer in the person of self if the interests of less fit social members be taken into consideration *merely* because they are *not* self; and conversely, humanity may suffer in the person of others or of an other if conduct be modified by a consideration of one's merely personal relationship towards that other. The insistence on personal responsibility frequently means nothing more than an insistence on this personal relationship as giving a special moral colouring to conduct. I, at least, run more risk of self-deception as to what is my duty towards my neighbour in a particular conjunction of events if, instead of looking the position simply in the face with a single eye to doing the fittest thing, so far as I know it, I mentally attitudinise before my own relationship to my own conduct, reflecting on my own responsibility as if the eventual deed either gained or lost in intrinsic importance from the circumstance of *my* happening to be the doer. True virtue requires that we regard neither first nor second persons when a question of duty arises. Our moral judgment of third persons is more likely to be reliable and equitable, and the moral man must endeavour to appear as a third person in his own eyes.

In order to strain the principle advocated to its furthest capability, and to give dissentient readers the utmost room for correcting it, I take an instance in which, if ever, personal considerations may be held to intensify moral obligation. A father is said to be specially responsible for the moral training of his child, by which it is meant that he is liable to be specially disgraced in the eyes of others if he neglect such training. It is implied in this that the man is to the same extent irresponsible for the moral influence he exerts over other people's children: that the personal relationship or its absence is alone sufficient to modify moral obligation; that, other things equal, his child's training *ought* to be a matter of greater concern to him than that of other children. Other things are *not* generally equal, or the moral fallacy involved would at once disclose itself. For the doctrine implies that the father deserves to be more disgraced for failing in what is a matter of general social duty towards one human being than towards another, the distinction all the while being one that concerns no one except himself. So far as the judgment concerning parental responsibility hints at the importance of senior guidance for the young, it is moral and true: so far as it specifies one child as of more importance than another coming under similar influence, and colours duty with a personal consideration of no value to the community, it is at least non-social, and, through its tendency to withhold a parent's attention from the human (which he may of course regard as the religious, or otherwise transcendental) meaning of his conduct, may become eminently immoral. Just so far as the father is practically influenced in his dealings with his child by a consideration of his own personal relationship, and the extra importance that relationship may give to his conduct in the estimation of those he knows, just so far is the good of the child subordinated in his mind to his own credit, and the tendency must be to lessen such considerations as, while concerning the child's good, are yet in no way related to that credit. Just in proportion to the access of value an action receives from the personal aspect of responsibility will be the loss of regard in which a precisely similar case is held when such responsibility is supposed or known to be absent. The question is to me unavoidable—Would not this loss operate harmfully on any one coming under the influence of the conduct based upon it?

Of course no question is here raised as to the appropriateness of the parent's greater love for his own child. Domestic welfare lies so firmly and deeply at the roots of social welfare that any principle threatening the former might well be mistrusted as unlikely to prove a true friend to the latter. What is here maintained is not that a father should not feel a stronger *affection* for his own child than for another, but that, when both are equally under his influence and control, his sense of "responsibility" concerning each child respectively should be precisely equal. He ought to treat both children with equal moral solicitude, and from the same motive. I profess to derive this "ought" from the highest sanctions of civilised morality. I submit that in recognising (as all must) the rectitude of such equitable dealing and equitable feeling on the part of the supposed parent, the title of super-personal conduct to our moral approval is granted; and that, by implication, the special *responsibility* of the parent—that is, his title to special reprehension in the case of his neglecting his own child rather than the other, or the other rather than his own—is disproved. If this be true, a doctrine presenting the reverse principle of an insistence on personal distinctions, whatever else it may have to recommend it, cannot be moral.

A formidable objection is often made to a doctrine which, while upholding the ancient principle of the excellence of virtue, yet denies the free-will and consequently the personal merit of the virtuous agent. It is said that such teaching, to be logical, must make no account of conscience or of conscientious motive as such, since either is liable to be misguided. I, however, entirely disclaim any imputation of undervaluing the great utility of conscientiousness as such. There may be no *merit* in being conscientious, but, according to the social standard of excellence, there is great *good* in it. A person's susceptibility of feelings of pleasure or pain in proportion to the conformity or non-conformity of his own conduct with any standard having a basis wider than his own interests is what, I suppose, we mean by his "conscience". It may not inaptly be compared with a social nerve which, in measure of its development and activity, gives its possessor a place in the sensorium of the community. However misguided it may here or there be—however vague or even inaccurate in its response to the demands made upon it—it is yet the finest product of past millenniums of human socialisation. I even incline to agree so far with the orthodox moralist as to affirm that a *right* (that is a conscientious) motive prompting a *wrong* or erroneous act is a better thing than a useful (extrinsically-moral) action which has been prompted by a selfish motive. Why? Because the tenour of a life signifies more to the community than its single acts, and the degree in which a man habitually acts upon the suggestions of his conscience is pretty certain to correspond with the degree in which he is amenable to considerations wide of his own concerns, as such. In other words, conscientiousness is potentially, even where it is not actually, moral.

I, however, dispute the moral legitimacy of using this "social sentience" in cool blood as a means of personal gratification: of looking forward to its favourable verdict—which, as is admitted, is *not* always a faithful verdict—as an end to be kept in view when aiming at rectitude. Whatever his "merit," a moral man looks out from self at facts, and aims straight at their fit adaptation to what he deems right, with no side glance at his own reflection in to-morrow's eyes to see what figure he cuts while taking his aim.

Finally, it may be objected that it is both foolish and wrong to cry down men's ready belief in their own merits, since such a belief has constantly proved a valuable stimulus to well-doing. Doubtless it has. But a useful stimulus is one thing: a permanent and necessary vital condition is another. Alcohol is often useful to keep flagging physical power up to working-point: taken medicinally it may even save life: but the healthier the life the less the need of its services. Similarly, I am not here concerned to show that the idea of personal merit has never done good, or that where a belief in it can be honestly held it may not in the future do good again: but I desire to show that it is not necessary to normal moral vitality, while it has very often done harm and indirectly produced misery by leading men to claim personal recompense as their natural due for conduct which in the nature of things produces only a social result: causing them to feel ill-used of gods and men when such recompense has been withheld. Until we have learnt to rectify sub-human nature's oversights, and to apportion our rewards on a principle more complex than hers, such expectations are doomed to disappointment; it being about as reasonable to expect in the natural course of things a *personal* reward for a *social* effort as to expect a physical reward for an intellectual effort: the removal of a disease, for example, by the solution of a mathematical problem. Since those among us who accept unreservedly the conclusions of modern philosophy must learn to do without any belief in our own merits, it is just as well to recognise the consoling fact that men may yet care to do right after they become convinced that they are not fine fellows for doing it, and that the rectitude which persists in action independently of personal bolstering is the highest and most invincible rectitude of all.

It cannot be denied that a sense of merit masquerading as "honour" has often done good service in prompting men to deeds or strengthening them for forbearances which they were not sufficiently socialised to desire for their own sake. But though in nine cases such a sense might lead a man right, in the tenth it might lead him wrong, thus disclosing itself, not as an essential principle of morality, but as the falsely-assumed rule which is disproved by an exception.

However generally useful we may allow the sense of honour to have been, it is none the less true that a wide-spread feeling exists testifying implicitly to its moral second-rateness, and recognising the love of virtue as morally superior to the love of glory, the dread of vice to the fear of disgrace. And the existence of such a feeling, however small the operative power it as yet possesses, indicates a dim recognition of the higher social value of such a standard whenever it *is* seen in operation.

The desire of public approval is not necessarily identical with the desire of public good. It is at least equally allied with the paltry desire of public notice which may be and sometimes is clearly exhibited immorally by felons in the commission of crime, and non-morally by speculative or artistic egotists in the production of work differing from that of their compeers only in the matter of eccentricity. Men are slow to learn that even their own glory must play second fiddle to the wants of a solidifying community, although it is a happy thing for themselves and for the community when at last they do learn it. Life is at once simplified and beautified, and many faults of character with their attendant miseries vanish spontaneously when the individual learns to content himself with what Emerson calls "his social and delegated quality,"—when he sees that whatever "respects the individual is temporary and prospective like the individual himself who is ascending out of his limits into a catholic existence".

When at last the merely rational theory we have been slow to learn as such flashes into light as a substantive truth which it is beyond our power ever again to ignore in our computation of things and their values, and when we become intimately conscious that our goodness is not in any sense of our own providing —when we have reached this belief as a realised practical conviction, I say, we never want our personal merit back again. In reaching the point where such a conviction becomes possible we have left behind us all other points at which the belief in personal responsibility, having been honestly tenable, has been in any degree useful. We have also unconsciously outlived that in us which received gratification from the contemplation of merit; the love of goodness which needed a love of self proper to eke out its small propelling power being transformed into a larger faculty which needs it not.

L. S. Bevington.

VIII.—NOTES AND DISCUSSIONS.

MR. LEWES'S DOCTRINE OF SENSIBILITY.[1]

Mr. Lewes's *Physical Basis of Mind* has already been subjected to searching criticism in the pages of this journal. But we trust that the importance of the subject may be held to justify a few farther remarks on his view of Sensibility, Sentience, Sensation,—the various aspects of Feeling,—giving as it does the key to his position in reference to the question of the forces that determine animal action.

Shortly stated, Mr. Lewes's view seems to be the following :—That Sensibility is the property of combining and grouping stimulations; that it belongs specially to nerve-centres, but to these in whatever part of the organism they are present; that the sensory reactions, when numerous and consentient, are attended by consciousness (the function of the organism as a whole), but that this is no invariable mark of sentient states; and that sentience as such, whether conscious or unconscious, is radically distinct from mechanical force in all its forms.

From this statement it appears that Mr. Lewes gives to the terms Sensibility and Consciousness a mainly physiological value. To this in itself no objection can be made; for, though it may be a question whether he does not thereby add to the confusion and ambiguity of language which he himself deplores as a bar to the progress of psychology, he is of course entitled to use terms in any sense in which he defines them. But it is quite legitimate to remark that, on this view, Sentience has not the character of a fact or phenomenon; no account can be given of its nature; it can be described merely through the effects which it produces and the source whence it springs. Hence, no doubt, comes the lame and tautological character of some of Mr. Lewes's explanations,—as that "the reaction of a sensory organ—called by the physiologist a sensation—is always a sentient phenomenon," and that "it is the physiological reaction of the living organism which constitutes sensation" (pp. 193, 420). Further, it is of more importance to observe that, on this view, Sensibility is merely an endowment of nerves, equally physical with any other which belongs to them as part of the material framework of animal life. This, indeed, Mr. Lewes would be far from allowing. He dwells on the distinctions between organisms and machines, and finds the two to be essentially different. But the difference which he finds, he cannot, it seems to us, account for. The questions discussed in his third and fourth essays are —What is the character of reflex action? and—May animal action in general be regarded as the result of purely physical processes? These questions he answers by pointing to Sensibility as the motive power peculiar to animal organisms. He says in effect: All animal action is reflex, but, even when unconscious, it is the result of sensibility, or vital force residing in the organism,—it is a sentient, not a physical phenomenon. And, since even unconscious actions are due to the operation of Feeling, much less can it be affirmed that those which evidently spring from it are the result of merely physical processes. But Mr. Lewes's conception of sentience as wider than and not implying consciousness, renders ineffectual his denial of the automatic character of animal action. For what is the essence of a mechanism? Is it not that the source of action is external—that the sequence of acts is determined from without? And, as long as action is so determined, and all results are produced by external force, is it of much moment whether the mechanism be of one kind or another, organic or inorganic? A plant has life, a stone has none; but we deny that the one can in any real sense act more than the other. That the processes of animal action are to a great extent mechanical is allowed by all. But on the automatic theory they are nothing but mechanical, there is no such thing as spontaneity in animal life.

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[1] This Note (by the daughter of the late Sir William Hamilton o Edinburgh) was in type before the death of Mr. Lewes.—Ed.

Thus the very matter in question is the source of impulse; and, if that be traced to any material agency, it matters not that it be called sensibility,—the conception is equally a mechanical one. We fail, therefore, to see that Mr. Lewes's theory, in replacing a mechanical by an organic view of the production of action, or rather in setting up a sensitive instead of a material mechanism, differs in any essential respect from that against which he contends; or that the word sensitive has any particular value, when sensibility is reduced to a purely vital property, and the springs of action are traced to the harmonious play of parts in a complicated organism. Similarly, on Mr. Lewes's prevailing conception, his denunciation of the "exclusion of sensibility from the actions classed as reflex" seems an elaborate strife about words: for what, after all, is the difference of any moment that separates him from his opponents? Both sides have to account for the fact that, under the influence of external stimuli, complex acts are performed by animals which have suffered serious and extensive mutilation of the nervous system. Both hold the effects observed to be the result of neural processes. Both regard these processes as unconscious. Only the one calls them sentient, the other insentient—the one mechanical, the other organic. Where else than in the names lies the difference? Mr. Lewes refers to a number of cases as evidence of sense-guidance in the absence of the brain. But, if sentience be merely the power of combining stimulations, how are the effects of sense-guidance to be discriminated? That the stimulations are combined, and so as to resemble the effects of sense-guidance, is allowed by all. The very question to be answered is: How are they combined? By physical properties, or by the sense of pleasure and pain, or by intelligence?

But, while Mr. Lewes's view of sensibility and consciousness is mainly physiological, it would be inaccurate and misleading to represent him as keeping out of view the mental elements which they undeniably possess. According to him, sensibility, though itself a property of nerves, has in sentience a "subjective side" or "psychological equivalent," which is "the substance of all knowledge".

Consciousness, while physiologically a function of the organism, is, "strictly speaking, a psychological, not a physiological, term," and designates either all psychic states or that class of such states which is attended by a reflected feeling of attention. And, if it be objected that such attempts to give to the same phenomenon intellectual and physical attributes, and to place it at once in the spheres of mind and matter, involve a fatal contradiction, Mr. Lewes is ready to reply that this, on the contrary, is the very foundation of his theory; his view of sentience being merely an application of the more comprehensive theory of "the twofold aspect," on which he explains the connexion between mind and matter, by supposing that, not only the neural process and the conscious state, but soul and body, nay, all that is physical and all that is mental, are related to each other as respectively objective and subjective phases of one underlying reality.

Mr. Lewes makes much use of the terms "subjective" and "objective," and claims by their aid to have solved one of the most difficult of metaphysical problems. But they are proverbially dangerous—apt to rend any system into which they have without due care been introduced: and, even as philosophical terms with a definite and recognised meaning, it appears to us that Mr. Lewes is not sufficiently guarded and precise in his manner of using them.

When we distinguish various aspects of any reality, we imply that we are face to face with some object, which in certain of its attributes remains unaltered, while in others it varies according to the point from which we regard it. The thing in its essence does not change; our relation to it is what changes. So much for aspects in general. In regard to the particular aspects in question, the terms "subjective" and "objective" relate to knowledge or thought, and to that alone:—they have no meaning save in reference to an act of intuition or conscious experience, which has as its poles the two correlative elements of the subject, or that which knows, = self, and the object, or that which is known, = not-self. The reality implied in subjective and objective aspects is the content of such an act of intuitive knowledge, which is regarded subjectively as a mode of self, objectively as a quality of not-self. But, because the reality is one, this content, whatever it be, must remain the same under the opposite aspects which by turns it presents; *i.e.*, what is considered, now subjectively, now objectively, must be the very same datum, one in time, in antecedent conditions, in all relations save that which it is conceived to hold to the subject and the object of the act of knowledge.

Now, all these conditions are violated in Mr. Lewes's application of the contrast of subjective and objective aspects. When, *e.g.*, he calls a conscious state or a change in feeling the subjective aspect of a neural process, he both assigns a subjective aspect to that (neural process) which can have none, because it is not the content but the object of an intuition, and designates as subjective and objective aspects of the same reality the data of separate and distinct acts of knowledge When two things are subjective and objective phases of the same, we cannot have the one without the other, or do away with the one without *ipso facto*, doing away with the other. But here we can undoubtedly have the one without the other, since the apprehension of a neural process is no conveyance of the corresponding sensation, nor *vice versâ*. In fact, the two never are apprehended together; and so far are sensation and the nervous system, soul and body, the mental and the material, from being indissolubly bound up in the same act of experience, that each is only remotely connected with the other by a chain of reasoning. Whereas in the case, *e.g.*, of colour, where the material quality and the visual sensation are unquestionably objective and subjective phases of the same, the coloured surface and the affection of the organ of sight are absolutely simultaneous, and determined by identical conditions: in fact they are the very same thing, which is only diversely thought about. Liberty and law are simply various aspects, because your liberty *is* my law differently expressed.

Mr. Lewes's plea (p. 403) for the admission of Consciousness as "a factor in the so-called conscious and voluntary actions," affords an example of the misleading effect of making aspects, or the relations of knowledge, convertible with the relations of existence. It is argued that, though consciousness is a purely subjective process, yet, because subjective and objective processes are but two faces of one reality, feeling is justly said to determine action. But two such faces must remain apart as eternally as parallel lines, and action, as that which is to be expressed in terms of matter and motion, can no more be determined by a purely subjective consciousness than can such a consciousness be determined by the movements of matter through space. If consciousness be an aspect, it cannot be a factor,—any more than the convex surface is a factor in the production of the concave; and, if consciousness in this manner accompany molecular changes, it can no more affect the character of the series than the colour of a row of balls in motion can tell upon the force of their mutual impact.

It appears, then, that Mr. Lewes's theory of Sensibility lies open to grave objections. It does not satisfactorily account for the phenomena with which it deals; it cannot hold elements which yet it is compelled to admit. We thence draw an argument in favour of the purely psychological view, according to which sensation is a form of consciousness, and consciousness another name for immediate knowledge. But if consciousness be knowledge, even of the lowest and most rudimentary kind, it cannot be a mere organic process or a function of the organism; it must imply a *self*. That is, knowledge is not interpretable without reference to self. It is this reference that is implied in Mr. Lewes's account of it as the function of the organism *as a whole*. But the unity of the ground and source of consciousness cannot be explained as the mere harmonious action of parts. We come to connect our consciousness with the organism, but what is given in it directly is *states*—of that which, when known, (but this it need not be and very generally is not), is known as self. It is quite certain that in no conscious state, of whatever kind, have we the direct suggestion of a consentience of organic parts, while in reflectively conscious states we cannot help being aware of "I" as thinking or feeling. Mr. Lewes says:—"The organism is in its objective aspect a physiological mechanism, in its subjective aspect a psychological mechanism". What is "a psychological mechanism"? Psychology knows nothing of mechanism. It has to do exclusively with states of feeling, of volition, of thought. These may or may not be produced by mechanical agency, but we must pass beyond psychology in order even to try to ascertain the fact.

The recognition of its conscious character yields a much more intelligible account of sentience than Mr. Lewes is able to give. Whereas he can define Feeling only through its results and its source, states of feeling as conscious become the simplest and clearest of facts, known with a directness and certainty beyond that of any other order of facts. Feeling, under the two heads of sense and emotion, becomes a general term for all conscious states in which self is preponderantly passive and subject to impression, and in which there is the qualitative apprehension of a state. Of course there are many stages of consciousness,—*e.g.*, that of molluscs and that of men,—and in these Feeling appears very variously combined with other elements; but in itself it is throughout the same.

Mr. Lewes cannot on his view consistently explain *how* Feeling determines action—how what is subjective passes into the objective sphere. From the other point of view, Feeling is a spring of action through the excitation of desire under the sense of pleasure and pain. Doubtless, also, it is from overlooking the reference of consciousness to self that Mr. Lewes seems to deny any essential distinction between voluntary and involuntary actions.

We would reiterate that only through the recognition of the self involved in consciousness can the controversy against the doctrine of animal automatism be carried on to clear, broad, and well-defined issues. Self is the only really spontaneous source of activity; nothing else yields any valid ground of escape from the mechanical conception of life. Mr. Lewes seeks (p. 407) to prove that "consciousness is legitimately conceived as a factor in the so-called conscious and voluntary actions," and that the animal organism is not to be classed among machines, on the ground that "the collateral product of one movement becomes a directing factor in the succeeding movement,—that being precisely what no automaton can effect, unless for changes that are pre-arranged". But, in the first place, it is of the essence of a machine that the product, direct or collateral, of one movement should *by pre-arrangement* give rise to the next movement, and Mr. Lewes assumes that the particular collateral product which he has in view does so impromptu. In the second place, that product (sensation) does not—he himself allows that it cannot—itself give rise to succeeding movements; for the same experience which assures us of the sensation of heat or moisture or roughness, excited, *e.g.*, by the motion of the hand over a surface, assures us that the direction of that motion is changed not by this sensation but by ourselves under its influence.

This evidence, therefore, fails to prove the conclusion which it was meant to establish; but, on the other hand, it unquestionably implies the element of self ignored by Mr. Lewes. Again, that element is implicitly recognised in the appeal to consciousness which Mr. Lewes makes as a last resort in his contention against the automatic theory, and which, as was formerly remarked in MIND, "is somewhat confounding when it comes from him". The very term "subjective," so constantly employed by Mr. Lewes, if meaningless apart from knowledge, is equally meaningless unless knowledge be conceived as a relation between self and not-self. Without allowing that there are "the strongest reasons for concluding that every feeling, every change in sensibility, is the subjective aspect of an objective organic change," we note here and elsewhere the repeated application of a word which binds Mr. Lewes to the recognition of an element not allowed for in his theory. When Mr. Lewes tries to prove that all actions are reflex and all sentient, by adducing evidence of sense-guidance from the behaviour of animals which have been decapitated or deprived of their cerebrum, he is again driven to an implicit recognition of the mental character of sensation. For this evidence does not prove sentience without proving a great deal more than he allows to enter into sentience. As Mr. Lewes gives no signs by which to discriminate sentience in itself, he can show it present only along with volition and intelligence as well as consciousness, and is driven to what he himself feels to be the absurdity of claiming the power of choice for headless reptiles. His signs of sentience are really signs of consciousness.

It appears to us that Mr. Lewes makes good his contention that the brain is not to be looked on as exclusively the organ of sensation,—that no one part of the organism is in itself the exclusive seat of sensation. But, while his position is—"not the brain but all nerve-centres," ours would be—"not the brain and not nerve-centres at all, are primarily and exclusively the seat of sensation". If individuality be the root and principle of sentient life, the brain may be the organ of sensation, as (what Mr. Lewes calls it) "the centre of centres," fitted, by its connexion with every part of the nervous system, to be the physical counterpart and medium of the ψυχή. It is because this communication of individuality must be impaired by loss of the brain, that we are led to suppose the physical properties of the nervous system to suffice, under stimulation, for the production of the effects observed. Besides, the comparative unimportance of the brain in certain forms of animal life may chiefly, perhaps, indicate the low type exhibited in these forms, even when the organism is in its normal state.

Thus, while holding with Mr. Lewes that Feeling is a force, we venture to differ from him both as to its real relations and as to the mode of its operation, and to assert that his account of these is not such as to remove the confessed difficulties of the subject, or to be accepted as finally sufficient.

E. HAMILTON.

PROFESSOR MAXWELL ON THE RELATIVITY OF MOTION.

UNDER the title *Matter and Motion*, Professor Maxwell furnishes one of the series of "Manuals of Elementary Science," published by the Society for Promoting Christian Knowledge. In its hundred and twenty small pages are presented the more important conceptions which students of physics and astronomy have arrived at as a means of grasping the phenomena of the material universe. A *prolegomena physica* of this nature is of very great utility; but how well adapted to the general public this attempt by Professor Maxwell is, how digestible the large amount of nutriment in this form may be, we shall not here surmise. We propose merely to bring forward some considerations regarding the relativity of motion, especially in reference to rotary motion, which are contained in the book or suggested by it.

On page 20, after speaking of the position of a point as its distances and directions from other points, Professor Maxwell says:—

> "All our knowledge, both of time and place, is essentially relative. When a man has acquired a habit of putting words together, without troubling himself to form the thoughts that ought to correspond to them, it is easy for him to frame an antithesis between this relative knowledge and a so-called absolute knowledge, and to point out our ignorance of the absolute position of a point as an instance of the limitation of our faculties. Anyone, however, who will try to imagine the state of a mind conscious of knowing the absolute position of a point will ever after be content with our relative knowledge."

Having then established the fact that our knowledge or conception of position involves only the geometrical relations between points and consists entirely of our knowledge or conceptions of those relations, Professor Maxwell proceeds to consider motion and rest, and to show the relativity of these also. Evidently since position is relative, motion, which is the change of position, must be relative to at least an equal degree. On p. 29 we read:—

> "It is true that when we say that a body is at rest we use a form of words which appears to assert something about that body considered in itself, and we might imagine that the velocity of another body, if reckoned with respect to a body at rest, would be its true and only absolute velocity. But the phrase 'at rest,' means in ordinary language 'having no velocity with respect to that on which the body stands,' as, for instance, the surface of the earth or the deck of a ship. It cannot be made to mean more than this.
>
> "It is therefore unscientific to distinguish between rest and motion, as between two different states of a body in itself, since it is impossible to speak of a body being at rest or in motion, except with reference expressed or implied, to some other body."

Thus all that we can know or conceive with regard to position, motion and rest, consists of the geometrical relations between the points concerned and the changes of those relations, and this is indeed all that the words *position, rest* and *motion* mean.

Let us illustrate this. We will suppose that the universe consists of a sphere and a ring, and that the sphere passes and repasses through the ring. And, that this ideal universe be as simple as possible, let all the points of the sphere move in straight lines with regard to the ring. Thus we will suppose it to swing to and fro for ever. We will people these bodies. The inhabitants of the sphere then will see the ring approaching, surrounding and passing them to return and repass. The inhabitants of the ring will see the sphere approach, pass through their world, and depart to return and repeat its motion indefinitely.

Now, it will be quite in accordance with the ordinary use of language for the inhabitants of the ring to speak of the sphere as in motion, and for the inhabitants of the sphere to speak of the ring as in motion. And if they wish to represent astronomical phenomena in their lecture-rooms, the inhabitants of the ring will make their miniature model of a ring stationary in the lecture room and cause the sphere to move to and fro through this. The converse will be the case with the scientists on the sphere. Nay further, in conceiving the phenomena in their own minds, those on the ring will be apt to imagine a model constructed in one way, those on the sphere in the other. Now, it is evident that in both these ways of representing the actual phenomena, whether in models or imagination, both parties are right. In the models the sphere and the ring must have specific relations of motion or rest to the walls of the lecture-room, just as they must have wires to support them and machinery to keep them going, but the relations to the walls of the lecture-room do not represent the real astronomical facts any more than do the wires and the clockwork. And if, when we imagine the models, we find it easier to conceive the one thing or the other as at rest with regard to ourselves, we must not forget that this relation is not one that reproduces what we wish to reproduce, namely, the changes of configuration of the system.

It is well to become perfectly clear with regard to this matter. We must not, for example, imagine that the two parties see different sides of the same thing. They do in fact see the whole of it.

Nor must we regard the two views as two different theories, each with a certain number of facts in its favour. There is only one theory, and all the facts sustain it. But there are two different ways of representing it.

We have spoken above of the particles of the sphere as moving in straight lines *with regard to the ring.* We have here to show that the expression *move in straight lines* is meaningless without an expressed or implied reference to a body with regard to which the motion is straight. Suppose that a pea is propelled through a straight peashooter. If each point in the peashooter is at rest with regard to the ring in our former example, then the inhabitants of the ring would say that the pea moved in a straight line. But if the man with the peashooter moved it about while the pea was going through, they would say that it moved in a curved line. If he should move the peashooter so as to keep it at rest in all its points with regard to the sphere, the inhabitants of the sphere would say that the pea moved in a straight line, and the inhabitants of the ring in a curved line.

Nor would there be any difference between the two views, because in the one case reference to the sphere, in the other to the ring, is understood. It is therefore evident that, in speaking of motion, not only the amount, but the direction of the motion and the nature of the trajectory as being straight or curved, contains an implicit reference to some other body.

Now, the question arises to what body is reference had in the use of the word *straight* in Newton's first law of motion. The law runs: *Every body perseveres in its state of rest or of moving uniformly in a straight line except in so far as it is made to change that state by external forces.*

If we confine our attention to terrestrial phenomena, we find that the law is in all ordinary cases sensibly true, when by straight we understand straight with reference to the earth. But better devised experiments and more accurate observation show that this is not exactly true, and we are driven to the fixed stars as a basis of reference. The trajectories must be straight with regard to these. But even with regard to these the law does not seem to be perfectly accurate. Still we are not obliged to consider the law as merely approximative; for we can define a plane, and points in that plane, so moving with reference to real, *i.e.*, material, points, that the law shall hold true to the extent of all our powers of scientific observation. We will illustrate by supposing that the stars did not shine, and hence were unknown to us, and that we attempted to apply Newton's law to the motion of bodies on the earth. We should find as before that it was not strictly accurate, with reference to the earth, and we should not be able to refer to the stars. We might, however, come to conceive of a plane passing through the poles of the earth and turning about its axis from east to west once a day (sidereal), and then we should find that the trajectories of the bodies would be almost exactly straight with regard to this plane. This plane, although imaginary, is rigorously defined with regard to real points on the earth, and other motions used as measures of time. Moreover, the motion would be straight with regard to all planes moved parallel to this plane with a uniform motion.

In this way then we may have to posit and define a plane of reference among the "fixed" stars, a plane not fixed perhaps with regard to any one of those stars, but whose motion is capable of definition with reference to the stars. With regard to this we may assume Newton's law perfectly accurate, but we must bear in mind that, if there is one, there is an infinite number of such planes, *i.e.*, all those moving uniformly parallel with that one which we happen to select.

We now pass to what Professor Maxwell says about the motion of the earth. On page 87 we read:—

"So far as regards the geometrical configuration of the earth and the heavenly bodies, it is evidently all the same

'Whether the sun predominant in heaven
Rise on the earth, or earth rise on the sun,' &c., &c.

The distances between the bodies composing the universe, whether celestial or terrestrial, and the angles between the lines joining them, are all that can be ascertained without an appeal to dynamical principles, and these will not be affected if any motion of rotation of the whole system, similar to that of a rigid body about an axis, is combined with the actual motion. So that, from a geometrical point of view, the Copernican system, according to which the earth rotates, has no advantage, except that of simplicity, over that in which the earth is supposed to be at rest, and the apparent motions of the heavenly bodies to be their absolute *(sic)* motions."

After what has been said, and won our assent, to the effect that motion and rest are conditions of relations between bodies and nothing more than this, and as these relations are merely those referred to in the passage just quoted, lines and angles, as being the same under either hypothesis, we are unable to see any difference between the Copernican and Ptolemaic theory as far as regards the real things which those theories regard. But it is evident that the phenomena might be modelled, and the models conceived in one way or the other, and it may be readily admitted that one way of making the orreries, or drawing the figures, or conceiving of the phenomena in miniature, might be practically more convenient than the other. When the phenomena are thus modelled or figured in imagination the difference between the two conceptions lies in the difference between the relations, of rest or motion, between the images of the astronomical bodies and the room or our own persons. But, as we have said before, these relations do not repeat any astronomical relations. While, then, the difference is a difference only in the scaffolding, it by no means follows that the results of the improvement in this would be inconsiderable as regards our real knowledge. Indeed they have been marvellous.

The word "absolute" appears in the foregoing quotation, and the implication is that in the one view the earth, in the other the stars, are "absolutely" at rest. To decide between them an appeal is made to dynamical laws. Inasmuch, however, as these dynamical laws are generalisations of modes of change of configuration of material systems, and as these changes have nothing absolute in the sense of non-relative in them, it is evident that the dynamical laws can have no reference to anything absolute in that sense—its ordinary sense. It remains then to discover what meaning is to be given to the word "absolute" in order that the statement of the earth's absolute rotation may be, we will not say true, but intelligible. Evidently from the appeal to dynamics, this meaning must have reference to some dynamical law.

We will see what Professor Maxwell refers us to. "Newton," he says, page 88, "was the first to point out that the absolute motion of the earth might be demonstrated by experiments on the rotation of a material system," and he goes on with some experiments on the development of centrifugal force by rotation, and concludes with Foucault's pendulum-experiment. Now the centrifugal force is a mere case of Newton's first law, and Foucault's experiment is another, a little more complicated. Newton's law was with regard to uniform motion in straight lines with reference to a plane (or other body of points) defined in such and such a way. The plane in which the pendulum, situated at the poles, vibrates must be at rest with regard to this plane of reference implied in Newton's law. The earth, rotating then with regard to the plane of Foucault's pendulum, rotates with regard to the plane of reference once in twenty-four hours. But the earth is said to rotate absolutely once in twenty-four hours, and it is only proved that it does so by showing that it rotates with regard to the plane of reference; therefore all that it means is that it rotates with respect to the plane of reference. "Absolute" motion then means motion with regard to a plane (or other body of points) with regard to which uninfluenced motion is in straight lines. Since, however, uninfluenced motion is in straight lines with regard to an infinite number of planes (or other bodies of points) moving parallel each to itself with a uniform motion, it may seem trivial to distinguish one of these planes from all the others, but a change of *direction* with regard to any of these planes is a change of direction with regard to them all. We may thus speak of rotation with regard to all the planes or a *change* of velocity with regard to them all, while the motion itself, not the change of motion, at any instant is something different for each one of these planes. To this we may then refuse to assign a value, for it might be, or rather is, every value. But the direction or change of velocity of the motion is the same for all of these planes of reference, and to these we may give the name "absolute". It is perhaps to be regretted that the same word has these two different meanings, the one non-relative, and the other the technical and peculiar meaning which we have described. But so it is and the technical meaning is too different from the ordinary meaning to be at all comparable with it.

It is hardly necessary to state that the Ptolemaic did not differ from the Copernican system by asserting that the earth was at rest with regard to a plane with reference to which uninfluenced motion was in straight lines. But it is easy to see how the Copernican conception was much better adapted to conceiving the dynamics of astronomy than the Ptolemaic. The models on the former system would have made the directions which the planets tended to take straight lines with regard to the room, and hence coincident with the directions which the miniature spheres of the orrery would actually take if they were free, while, on the other plan, the bodies would have to describe complex curves in the room. This is the grand advantage in the Copernican conception, but, we need hardly say again, it is one of mere subjective logical convenience.

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MR. G. S. HALL ON THE PERCEPTION OF COLOUR.

Mr. G. Stanley Hall has an interesting though somewhat speculative paper on this subject in the *Proceedings of the American Academy of Arts and Sciences*, Vol. III., p. 402 (1878). Purkinje, Helmholtz, and others had noted that if two parallel fibres of spider's web be brought very close together on a white ground the intermediate white line, when closely examined with one eye, presents a beaded or zigzag outline. This phenomenon is explained by assuming that the retinal image of such a line, falling across a row of cones presumably arranged in alternate order (thus—:·:·:·:·:·), would only excite activity in one cone, where it fell centrally, yet would excite activity in halves of two adjacent cones, where it fell peripherally, and would accordingly be cognised as twice as large in the latter case. Now, if it be true that the ultimate percipient elements are cones of three varieties, corresponding to the colours red, green, and blue-violet, it would follow that the individual cones which perceive any one of these colours, say green, must be much more widely dispersed over the retina, being at best only about one-third of the whole number. Hence, with black lines on a green ground, or *vice versâ*, the beaded irregularity ought to be much greater than in the case of white light, which would excite all three orders of cones.

To test this, Mr. Hall gummed ultimate fibres of silk—white, red, green, blue, and violet—on a piece of black paper. It was found that the wavy outlines were certainly not more, and apparently even less, observable in the coloured than in the white fibres. Hence, if the cause assigned to the beading be correct, it would seem that the hypothesis of three orders of cones must be abandoned. Accordingly, the author suggests that each cone may very probably be percipient of light of all three orders, but of each in a different plane. He supposes that minute segments or layers of the cone may vibrate sympathetically in unison with light-undulations of a particular frequency. To test this view, observations were made on positive after-images. Squares of coloured paper were fastened to a strip of pasteboard, and a movable slit allowed any colour to be seen by itself, without effects of contrast. Positive after-images were formed, first, by rapidly opening and shutting the eyes some eight or ten times, at the rate of once a second; and afterwards by illuminating the squares with the electric spark. A solar spectrum was also similarly observed with a movable slit. With colours near the middle of the spectrum, the first phase of the after-image is nearly or quite white. But red and violet undergo no such paling. In the after-image of a short total spectrum, the middle still seemed nearly or quite white. Even when thrown upon red and violet paper, which by absorbing most of the green rays got rid of the greater intensity of the middle, the effect was still the same.

Mr. Hall suggests the following possible explanation. Let us assume that the cones are composed of transverse disks, each answering, say by sympathetic vibration, to the action of light-waves of corresponding periods. Then the perception of white light would require the simultaneous agitation of most or all of these disks. Again, let us assume these disks to be arranged in spectral order—those sensitive to red near the point of the cone, those answering to violet near its base—each disk being "transparent" (*i.e.*, non-absorbent) to all waves of greater length than its natural period. Then agitation of a group of medial disks might be mechanically communicated to the groups on either side, and the wave of disturbance so aroused, passing to both ends of the series, would set up a sensation of white; while the agitation of either end would not produce the same general disturbance. Furthermore, pressure (mechanical or from congestion) often causes pure coloured as well as white images. This effect, unexplained on the hypothesis of three sets of cones, is explicable on the new hypothesis, if we assume that increasing degrees of pressure excite waves of disturbance of increasing length. The facts of red-blindness (true Daltonism) are also explained by supposing that the exposed ends of the cones, among the coarse pigment-cells of the choroid, are those perceptive of red; and it might be expected that the cone-ends would be often injured or undeveloped, as indeed the microscopist frequently finds them. [Actual post-mortem observations on the retinas of known red-blind persons would here be valuable.] The sudden decrease in saturation on mixing two tones of green, and the comparative paucity of distinct hues of green, considering the total length occupied by that colour upon the spectrum, are accounted for by the instability which the green-percipient disks would possess, owing to their central position and the ready way in which a wave of disturbance, originated in them and passing each way, would produce the impression of an admixture of white light. The sympathetic function at the centre of the cones would thus be less specialised than at either end. The paper concludes by a discussion of the bearing which late observations on the "retinal purple" would have upon the new theory, and by some notice of its connexion with various other modern hypotheses. The author modestly puts forward his ingenious suggestions in the most tentative form; and further facts or elucidations in the light of his *aperçu* would be valuable. Its relation to the subject of so-called colour-blindness in particular would seem to merit the attention of specialists.

GRANT ALLEN.

PROFESSOR HERZEN ON "THE PHYSICAL LAW OF CONSCIOUSNESS".

THE following is an abstract of a memoir by Professor Herzen of Florence, which has been read at the Accademia dei Lincei in Rome on Jan. the 5th, and will appear in the next volume of the *Proceedings* of the Lincei:—

"After having pointed out the fundamental principles of modern Monism, according to which, in the organic as in the inorganic sphere, the words 'force' and 'matter' do not stand for two entities that either work together or are in conflict with one another, but for mental abstractions answering to the two aspects, material and dynamical, of any phenomenon, or to diverse manifestations of an unique substance, whose absolute nature remains unknowable for us,—the author proceeds to treat of the thorough disagreement that exists amongst the most eminent monistic psycho-physiologists on the subject of the participation of consciousness in central *nervous* activity. Whilst all admit that there is no essential difference between the activity of the encephalic and that of the spinal nervous centres, yet some hold that consciousness is merely a phenomenon frequently concomitant with, but not necessary to, the activity of all nervous centres, *which can act equally well without it;* other thinkers hold, on the contrary, that consciousness *constantly* accompanies the activity of every nervous centre. G. H. Lewes and Dr. Maudsley are typical champions of these two rival opinions in the field of modern English psychology.

"According to the author, both of these opinions are at once true and false—true, in so far as each starts from one of the two aspects of psychical activity, false in so far as each neglects too much the aspect that forms the point of departure of the rival theory; so that each, in consequence of this neglect, after having grazed the truth, fails to grasp it. He believes that the truth is to be found in the synthesis of the two rival opinions, which synthesis it has been his endeavour to effect; and he proposes, under the name of 'physical law of consciousness,' a formula that embraces every act of any nervous centre, encephalic or spinal, from the most intensely conscious of intellectual acts, down to the most unconsciously automatic of reflex movements.

"Starting from the point of view of absolute Monism, he contends that a psychical act, objectively considered, is a special molecular movement induced in the central nervous elements either by an impression from without, conveyed to them by afferent nerves, or by a reflex sensation (from within): it does not become 'psychical' until the molecular vibrations in question have been communicated to some cell of the grey matter, and it ceases to be psychical the moment the vibrations cease, or quit the cell to pass into efferent nerve-fibres and be discharged in the shape of muscular movement. The phenomenon taken in its totality presents the following two phases:—First, decomposition of the substance of the nervous elements, and liberation of the latent energy stored up in them, or of the work represented by it; secondly, reconstitution of their substance and storing up of latent energy destined to furnish future discharges. The author calls the first, *nervo-psychical disintegration;* the second, *nervo-psychical re-integration.* Re-integration always takes place according to a mode determined by the mode of the disintegration that preceded it; so that after its functional disintegration the nervous element, originally integrated according to the evolutional type of the animal to which it belongs, does not return to the state it was in before discharge, but acquires a disposition that enables it to discharge with increased facility along the lines of precedent discharges. This is, in fact, a necessary condition of the evolution or progressive development of brain or mind.

"The author, having premised these considerations, which he deems demonstrated by modern biological research, formulates as follows his 'physical law of consciousness':—

Consciousness never accompanies either the integration or the re-integration of the nervous elements; it only accompanies their functional disintegration; its intensity is directly as the intensity of the disintegration and inversely as the readiness with which the internal energy of the nervous element is discharged upon some other element, sensitive or motor, central or peripheral.

"After bringing forward various objective and subjective data of observation in support of this law, in so far as it regards the activities of the cortical centres of the cerebral hemispheres, the author proceeds to show that it applies equally well to the activities of the sensori-motor centres of the base of the brain, and, finally, to those of the spinal centres. His exposition leads to the result that, whilst the habit of continual and uniform reaction against uniform impressions has ended in the reduction of the medulla spinalis of the higher vertebrates to a condition of complete automatism,—as regards sensorial centres, the variety of impressions received by them, and the resulting diversity of motor and other reactions, have prevented their reduction to a like state of automatism. In the cortical centres, the constant variety, progress, and complexity of their functions, render impossible the reduction of their activities to the state of automatism; unless, indeed, there exist a limit beyond which psychical development cannot pass. If such a limit exist, there must come a day, distant though we must hope it be, in which the psychical activity of the human brain will have exhausted all its possibilities of further evolution, and become little by little instinctive, reflex, automatic, mechanical, such as has already become that of animals whose poorer organisation contained fewer possibilities of development.

"The author believes that his law is applicable to every functional act of any nervous centre; and it unites in a conciliatory synthesis the opposite opinions of Lewes and of Maudsley, by showing that the former, preoccupied with the phase of disintegration in nervo-psychical processes, sees consciousness everywhere; whilst the latter, preoccupied with the phase of re-integration, everywhere sees unconsciousness."

VIII.—CRITICAL NOTICES.

Hume. By Professor Huxley. ('English Men of Letters Series,' edited by John Morley.) London: Macmillan, 1879. Pp. 208.

This short account by a man of science of one who was more than a man of letters presents some notable features. The biographical part, consisting of forty-four pages in all, is less detailed than could be wished or might have been expected: still the author, with characteristic art, has managed to convey by a few firm strokes a very distinct impression of the manner of man that Hume was; and, few as the pages are, they yet include well-selected representative extracts not only from Hume's charming correspondence but also from the more popular of his essays. He is thus not inadequately portrayed on most of his sides; nor are his foibles and prejudices by any means forgotten in the general picture that is given of placid strength of mind and character. In particular, the reader may carry away from the sketch the essentially true impression of Hume's philosophical activity—that here was a man fitted as few have ever been to sound all the deepest questions of human concern, yet withal one who did not live for that kind of work. The precocious development of Hume's speculative ardour was followed by its contented repression in mature years; while his striving after momentary effect and personal distinction is visible alike in the more than candid self-exposure of his earlier philosophical manner and, when that failed of the mark, in the polished reserve and studied inuendo of his later. Prof. Huxley makes no pretence that he is dealing with one of the loftier spirits of the race. But if there is one man more than another whose thinking has to be reckoned with in these days, it is Hume, and, such as it is, it can have no more fitting interpreter than a man of science.

Though he shows his sense of its exceeding importance by giving to the Philosophy more than three-fourths of the whole space at his command, Prof. Huxley does not of course aim at producing a balanced exposition of the whole. When he has traced Hume's account of the origin of knowledge up to the point when the generalising and objectifying agency of Language comes into play in the form of propositions, he is forced to confine himself to those philosophical topics that are of more general interest to mankind, and which, probably on that account, were those that continued to engage Hume's own thoughts after the wider-ranging activity of his youthful intellect was spent. Upon such subjects as Miracles in relation to the Order of Nature, the Soul, Theism, &c., Hume's ideas get, in some eighty pages, that sympathetic exposition, mixed with vigorous and independent criticism, that were to be expected from his present interpreter. In this place, however, we may rather note a few points in Prof. Huxley's treatment of the foundations of Hume's philosophy, which he has sought to repair and make good in the light of more advanced knowledge.

He would amend the scheme of the sources of knowledge by adding to Hume's enumeration of the senses "the muscular sense, which had not come into view in Hume's time"; by extruding the passions or emotions (Hume's so-called 'impressions of reflection') as being all of them "complex states arising from the close association of ideas of pleasure and pain with other ideas"; but, chiefly, by positing "as ultimate irresolvable facts of conscious experience" three feelings or "impressions of *relation*," namely, co-existence, succession, similarity and dissimilarity. He is, of course, perplexed by Hume's unaccountable wavering in the matter of Relations, and sees the need of making a clear and decisive affirmation on this all-important head; but, whatever may be said against Hume's uncertain enumeration of the formal elements, it would not be easy for Prof. Huxley to prove his own sufficient for the explanation of knowledge as exhibited by any human mind. Nor is his statement of the material elements up to the mark of modern psychological science when he is content, under the head of Sensations, to add to the usual five senses "Resistance (the muscular sense)," and makes "Pleasure and Pain" a co-ordinate chief head. Impressions (1) of Sensation, (2) of Pleasure and Pain, (3) of Relations (as above)—are hardly an adequate scheme of the "Contents of the Mind".

How the impressions arise or come to pass in consciousness is the next question dealt with, and here Prof. Huxley, while noting again a want of decision in Hume's answers, due (as he thinks) partly to his apparent unfamiliarity with even such knowledge of the physiological conditions of consciousness as was then current, declares for himself "that the materials of consciousness are products of cerebral activity," "effects or products of material phenomena," or, as he says more explicitly in another connexion, "products of the inherent properties of the thinking organ, in which they lie potentially, before they are called into existence by their appropriate causes". In calling them, however, effects of material phenomena, he is careful to explain that he means nothing inconsistent with the idealistic position—"that whenever those states of consciousness which we call sensation or emotion or thought come into existence, complete investigation will show good reason for the belief that they are preceded by those other phenomena of consciousness to which we give the names of matter and motion". And whether these phenomena, in the last resort, are due to the evolution of the mind as a "Leibnitzian monad or Fichtean world generating-ego," or are symbols (not copies) of "a real something" in relation with "the part of that something which we call the nervous system"—are two suppositions which, in his view, are equally possible in themselves and equally beyond the possibility of being either of them exclusively established.

There is some very striking expression, on p. 81, in the short development of this view, but the author seems open to the charge of not keeping sufficiently apart two different kinds of consideration. There is, of course, a good meaning in saying that sensations arise when certain changes are effected in the nervous system, and, in this point of view, do not arise without such antecedents or (more strictly) accompaniments. There is also a good meaning in saying that the physiological accompaniments have themselves an expression in terms of conscious experience, and, from this higher point of view, cannot be allowed to be the absolute conditions of mind which the materialists suppose. But what is of chief importance is that the two points of view should be clearly severed, and this they hardly are when it is said that the phenomena of sensation, &c., are, in the "idealistic" point of view, to be regarded as "preceded by those other phenomena of consciousness to which we give the names matter and motion". From the idealistic, which is the philosophical, point of view, there is in truth no question of a relation of sensation or other subjective experience to anything that is ever called matter and motion. When we speak of such a relation, we are at the other point of view—the point of view of positive science. The question of the "origin" of states of consciousness is, in fact, an ambiguous one; and this, it may be added, makes it especially important in describing their physical relations, which is one question, not to speak of them as "products" or "effects" of nervous processes, when such terms, if at all strictly interpreted, must be held to exclude, or at all events prejudge, the other, or philosophical, question. It is possible that Hume refrained from such a statement as Professor Huxley offers less from ignorance of such physiology as was accessible to him than because he remembered that he was engaged upon a philosophical inquiry.

On the historic question of Innate Ideas so lightly skimmed over by Hume, Professor Huxley takes occasion to quote some passages from Descartes' minor writings, which should be noted by students of the history of philosophy as showing how circumspect that thinker could be, when he chose, in his statement of the relation of reason to experience in knowledge. More particularly, they prove him to have clearly anticipated the kind of answer which Leibnitz, in the *Nouveaux Essais*, takes, and usually gets, the credit of having made to the arguments of Locke. In comparison with Descartes, Hume is rightly charged by his critic with an imperfect appreciation of the import of the question and an inadequate resolution of it.

Rightly, too (as I think)—to refer but to one other point of the detailed exposition—does Professor Huxley, when dealing with Hume's account of "Abstract Ideas," in relation to language, lay stress on the different cases of concepts, as they stand related or not to definite percepts. While highly abstract qualities of things or relations amongst things may safely be pronounced unthinkable without the help of definite marks and signs, it has been too readily assumed by nominalists that the corresponding words are in like manner indispensable to the mind's *com*prehension of sensible objects. In spite of what Berkeley, once for all, so triumphantly urged against the easy-going assumption of conceptualist thinkers—that there is no more difficulty in the definite representation of generals than of singulars, the circumstances in which concepts are formed are in fact so different as to preclude the possibility of making any hard and fast statement as to the representability or non-representability of generals. When definite percepts are experienced with well-marked common features overpowering individual differences, it is quite intelligible, according to psychological law, that there should arise representatively some *schema* more or less definite which for purposes of (general) thought may stand for the multitude of singulars. This seems to be the view that Prof. Huxley seeks to express in less technical language, and in illustration he very happily refers to Mr. Galton's production of the typical face of a class by superposition of portraits of similar individuals on the same photographic plate.

The earlier chapter on "The Object and Scope of Philosophy," with which Prof. Huxley passes to the second and more serious part of his task, deserves, in conclusion, to be still more particularly noted. Though it may not contain anything that is unfamiliar to philosophical students, it is really, for its length, a very good statement of the meaning of philosophy in relation to the sciences and also, more especially, of the relation of philosophy to psychology. Taking Kant's famous statement of the business of Philosophy—that it answers the three questions: "What can I know?" "What ought I to do?" and "For what may I hope?" and bringing back the last two questions to the first, he proceeds to maintain that, while that question is distinct from the question of Science or the Sciences: "What do I know?" it can be answered, in its different bearings, only by reference to the results of one branch of science, namely Psychology, which investigates the actual contents of the mind. Here are some of his sentences, bearing on the question of the scientific standing of Psychology :—

> "Psychology is a part of the science of life or biology, which differs from the other branches of that science merely in so far as it deals with the psychical, instead of the physical, phenomena of life. As there is an anatomy of the body, so there is an anatomy of the mind: the psychologist dissects mental phenomena into elementary states of consciousness as the anatomist resolves limbs into tissues and tissues into cells. . . . As the physiologist inquires into the way in which the so-called 'functions' of the body are performed, so the psychologist studies the so-called 'faculties' of the mind. . . . On whatever ground we term physiology science, psychology is entitled to the same appellation."

Nothing, again, could be more pointed than his rejection of Comte's plea against the possibility of mental introspection; and when Hume himself—in the remarkable passage of the Introduction to the *Human Nature*, where he argues for an extension of the area of psychological observation to the broader field of human social activity—seems for a moment to anticipate Comte's view in a more guarded form, Professor Huxley is immediately ready with the very pertinent remark that "the manner in which Hume constantly refers to the observation of the contents and the processes of his own mind clearly shows that he has here inadvertently overstated the case." It is refreshing to come across one "man of science"—and him a leader among his fellows—who can enter so sympathetically and thoroughly into the conditions of psychological inquiry; and it may be hoped that his words will not fall idly upon ears that are deaf to voices from within the psychological camp itself. Professor Huxley's appreciation of the scientific character of Psychology contrasts very favourably with the different opinion—specious but hollow—to which Professor Clerk Maxwell has lately committed himself in a bright review of a dull book (see *Nature* December 19, 1878).

EDITOR.

Habit and Intelligence: A Series of Essays on the Laws of Life and Mind. By JOSEPH JOHN MURPHY. Second edition, illustrated, thoroughly revised and mostly re-written. London: Macmillan & Co. 1879. Pp. xl., 583.

Mr. Murphy has republished his work on organic and mental evolution in one volume, with so many alterations that, as he justly claims, it may be practically regarded almost as a new book. The Introduction to the first edition, consisting of an essay on historical methods in science, has been suppressed: while the Preface to the first edition does duty as Introduction to the present issue. All the chapters dealing with physical science, all the *résumés* of facts bearing on evolution, together with the chapter on the Senses, and the three chapters on the Classification, the History and the Logic of the Sciences, have also been omitted, "to avoid making the work too bulky with material which is not directly relevant to its main subject". On the other hand, several new chapters have been inserted, which may conveniently be summed up under two heads. First come three chapters on the Facts of Variation, on the Effect of Change of Conditions, and on Mimicry, Colour and Sexual Selection. These consist mainly of short summaries, giving the gist of such among Darwin's great works as have appeared since the publication of Mr. Murphy's first edition, together with a few excerpts from Mr. Wallace, Professor Mivart and the current scientific periodicals. Secondly, the purely new constructive matter of the edition is contained in five chapters on Classification and Parallel Variation; Classification and the Fixation of Characters; Structure in Anticipation of Function; the Origin of Man; and Automatism. "The chapter on Metamorphosis and Metagenesis is mostly new. The psychological chapters are re-written and much improved; and there are few chapters which are not in a considerable degree re-written." In short, the alterations and additions bring the author's original conception (with few exceptions) up to the level of the most modern discoveries and theories.

It will be obvious from the above summary that very little of the fresh matter comes strictly within the domain of MIND. Nevertheless the subjects of which the new essays treat have so many close relations both to Psychology and to Philosophy, that some short account of their contents may not be undesirable here.

The chapter on the Facts of Variation is a brief review of Mr. Darwin's *Variation of Animals and Plants under Domestication*, and adds little or nothing to the existing stock of knowledge on the subject. That on Classification and Parallel Variation endeavours to show, after Professors Cope and Mivart, that "transverse affinities" exist between the species of different genera; that is to say, that certain species of each genus answer to certain species of other genera —a system which may best be illustrated after Mr. Murphy's own manner as follows, where A, B and C stand for genera and 1, 2 and 3 for species. The transverse affinities will then be seen thus:

A^1, A^2, A^3.
B^1, B^2, B^3.
C^1, C^2, C^3.

These supposed facts of Parallel Variation seem to Professor Cope and Mr. Murphy inconsistent with the belief that organic evolution is mainly or entirely due to natural selection. But the cases alleged in defence of the theory seem ridiculously inadequate to support so weighty a conclusion. If we must bring in a *deus ex machina* to account for such occasional parallelisms, we ought at least to be shown a *dignus vindice nodus:* whereas the system as propounded by Mr. Murphy looks to an outside observer quite as fanciful as the *quinary classifications* of earlier biologists. Where the habits of life are similar we should expect direct and indirect adaptation to produce great similarities of structure in very different animals or plants, as in the humming-birds and sun-birds, the cetacea and fishes, or the euphorbias and cacti. Indeed, Mr. Murphy himself makes so many admissions upon this point, as well as upon the influence of correlation of characters, that he practically answers his own arguments.

The chapter on Classification and Fixation of Characters endeavours to prove that natural selection will not account for the relative fixity of unimportant specific characters. But, waiving the question whether any such relative fixity really exists (a point upon which a certain amount of incredulity may be felt; for any man who has specially studied a small group of species—say, for example, the British snails—must have been struck by the infinite number of varieties and individual peculiarities), let us take the particular case which Mr. Murphy alleges—the arrangement of the parts of the flower in plants. Now this, it might seem to many, is *not* an unimportant character, from the functional point of view, but is rather a matter of prime importance, as influencing the proper fertilisation of the pistil. And even if it were not so, would not constant crossing (as I have endeavoured to show elsewhere) necessarily result in a relative uniformity and definiteness by neutralising individual peculiarities, as, for example, in the shape of bones inherited from remote ancestors, as much as in mere spots or lines of colour? And are we ever sure that any character, however apparently useless, is really so? Do not works like Darwin's *Fertilisation of Orchids* and Kerner's *Flowers and their Unbidden Guests* teach us from day to day that some unseen purpose lurks in the most insignificant detail of every plant and every animal? We ought at least to make perfectly sure that we know *all about* a particular character before we dogmatically assert that it is functionally useless. But even if we grant Mr. Murphy's argument all possible licence, it would still seem that comparatively functionless structures, handed down from an immense number of ancestors, ought above all others to be kept constant by neutralisation of individual variations.

The chapter on Mimicry, Colour, and Sexual Selection contains a short summary of Darwin's and Wallace's views on these subjects. But Mr. Murphy does not seem to be acquainted with Sir John Lubbock's researches upon the optical perceptions of insects, as he refers to a much less conclusive observation on the spectrum of the firefly's light: and if he had consulted Mr. Wallace's *Tropical Nature* (pp. 189 ff.) he would probably have modified his remarks with regard to the difficulty of understanding how the first steps in mimetic resemblance are taken, though his application of the principle of "local resemblance" to these cases certainly deserves consideration for its ingenuity. Mr. Murphy seems overmuch inclined, also, to use the word "beauty" in too limited and human a sense. For example, he observes that gasteropods "certainly have not a mental nature sufficiently developed to appreciate beauty," and therefore he argues that the colours of their shells cannot be due to sexual selection. But surely it is going rather far to talk of "mental nature" and "appreciation of beauty" in connexion with so simple a taste as that for bright colour. It may well be doubted whether any gasteropods (except possibly the strombidæ) have eyes sufficiently developed to distinguish colours: but, granting this, there seems no reason why they should not be attracted by bright hues as readily as any higher species. At any rate, it is certain that gasteropods can perceive light, and are attracted by it in the same manner as insects. If, therefore, they do not receive pleasure from the stimulation of colour, it is probably because they are unable to perceive it.

The most striking chapter in the whole book, however, is that which deals with Structure in Anticipation of Function. It cannot be denied that Mr. Murphy has here got hold of the great *crux* which evolutionists have hitherto failed to solve. Of course the difficulty has struck every Darwinian already: but Mr. Murphy uses it with much force, not as a mere friendly suggestion, but as a weapon of hostile import. No doubt the origin of certain structures, such as the mammary glands or the wings of birds, is exceedingly difficult to understand: because it is hard to see how they could be of any use to the animal until they had reached a considerable degree of development. But it is too much to say dogmatically of the rudimentary notochord in the ascidian larva (to take a concrete instance) that no "possible benefit to the animal itself will account for it". From this and similar examples the author draws the conclusion that "as there is Foresight in organic development, there must be Intelligence". This intelligence is seen in the evolution of the crustacea, which cannot be explained (it is asserted) by the action of the environment on the organism; in the metamorphoses of medusæ; in the transition from fishes to air-breathers; and in the "preparations for bird-structure" in the dinosaurians. In all these instances it might be wiser to acknowledge our ignorance of the real course of evolution than to call in an unknown agent to account for half-known facts.

Finally, the chapter on the Origin of Man takes up, with like intent, Mr. Wallace's view that natural selection is inadequate to explain the evolution of the human brain, because primitive man is supposed to have had a brain developed beyond his actual attainments. If we remember, however, the important principle pointed out by Mr. Herbert Spencer, that brain is proportionate to the complexity of the muscular movements performed, as well as to their number, it will appear that the central nervous system of primitive man—a talker, an instrument maker, an artist, a hunter, a fisherman, and a warrior—is really *not* more than that required by his actual attainments, which are so infinitely more varied than those of the highest anthropoid ape. Mr. Murphy himself almost allows as much, for he says that language alone may be sufficient to account for the difference—a very questionable statement, as it seems to me. But he then goes on to say that this only removes the difficulty one step back, as language itself is developed among savages far beyond the needs of their actual life. It is curious that practical researches into several special vocabularies have led more than one observer to the diametrically opposite conclusion,—that language is only developed in exact proportion to the needs of its users. From these and other alleged facts, Mr. Murphy, like Mr. Wallace, deduces the belief that an Intelligence has presided over the development of man. But while Mr. Wallace seems to believe that the Intelligence supervened, so to speak, at a late date, and need only be invoked after the appearance of the quadrumana to account for the special peculiarities of mankind, Mr. Murphy thinks that Intelligence has guided the whole course of organic evolution, from the root upward. Again, while the former author regards this Intelligence apparently as external to the organism, the latter considers it as immanent. The phrase "unconscious intelligence" which he applies to its lower forms might even remind one of Von Hartmann. On the other hand, Mr. Murphy disclaims the imputation of pantheism, and seems to consider himself a theist, though on this point he speaks with apparent reserve. The new edition leaves us as much in the dark as to the nature of the immanent Intelligence as did the former one (if not even more so): and it must be confessed that the reader lays down the book with no very clear conception of its ultimate intention.

On the whole *Habit and Intelligence*, now as before, represents that class of beliefs which form convenient resting-places between two theories, the old and the new. At bottom it is a compromise, a reconciliation between evolution and design. Like most other reconciliations, it will doubtless satisfy for a while a certain number of timid and inquiring minds, just as Hugh Miller's reconciliation of geology and Genesis satisfied similar spirits in a past generation. But Mr. Murphy is too conspicuously candid, honest and manly for a good apologist. He admits too much and allows the strong points of his adversaries too easily. The new chapters state with great clearness the principal difficulties in the way of accepting natural selection as the sole cause of organic progress: but they also state with too great emphasis the reasons for not regarding these difficulties as final.

GRANT ALLEN.

Phänomenologie des sittlichen Bewusstseins. Prolegomena zu jeder künftigen Ethik. Von EDUARD VON HARTMANN. Berlin: Duncker, 1879. Pp. xxiv. 871.

It was in 1869 that Von Hartmann took the reading world of Germany by storm by the publication of his *Philosophy of the Unconscious.* Since then edition has rapidly followed edition (the most recent being the 8th, published last year, in two volumes), and its author has sent forth at short intervals other striking compositions from his productive workshop. Now, to show that the creative energy is still unspent, we have a freshly-written volume of 870 pages on a department of thought hitherto neglected by him. This last performance will hardly have the success of the *Philosophy of the Unconscious*, lacking the charm of a novel theme and that audacity of imagination which characterised the earlier work; but it is marked by an originality of treatment and artistic completeness somewhat unusual in a treatise on morals. Von Hartmann, as is well known, possesses in a high degree the ability to write for the general public without being superficial, the power of handling the profoundest themes of thought and life without incurring the reproach of learned dulness. He always refuses to look through other people's spectacles, and accordingly makes the reader feel that the problems he is dealing with are really personal problems, not merely abstract questions to be debated in the schools as matter of speculative curiosity. But again, our author is anything but a merely "popular" thinker in the sense that he carries the discussion just far enough to satisfy the demands of common sense. On the contrary he has perhaps an inordinate desire to probe things always to their very bottom, and is never satisfied unless he has carried to its extreme consequence the principle he finds himself logically necessitated to accept. Thus, in the present book, although it is called, and is for the most part, a Phenomenology, or examination of moral *phenomena*, he cannot refrain from adding a third section on the *Urgrund* of morality or an account of *absolute* moral principles. I mention this merely as a characteristic of the author, without pronouncing on its wisdom or unwisdom. The English mind tends to err (if error it be) too much on the other side for a reader not to feel a shock of pleasant surprise when he takes up a book, professedly addressed to the world at large, which considers a final metaphysic indispensable to the regulation of the commonest life.

Before entering upon his main task, namely, an examination of the genuine moral consciousness, Von Hartmann devotes about a hundred pages to a consideration of Pseudo-morality, or those principles on which the human mind first relied to guide its action, and which, though really non-moral, were a necessary propaedeutic to the rise of a true moral consciousness. These pseudo-moral principles are Egoism and Heteronomy—the principles of Self-Love and External Authority. In the main these correspond with the principles of Antiquity and the Middle Ages, at least so far as the Greek and Scholastic philosophies are concerned. It was the well-being of the *individual* which Greek (and Roman) Ethics always assumed to be the final court of appeal in matters of conduct, whether that well-being was positive or negative pleasure, or the negation of pleasure in the form of apathy or indifferentism. The natural mind has no doubt with regard to the attainability of happiness, and the sympathies are for a long time too weak to allow of any regard for the happiness of others, except as an enforced limitation to the demands of self-love. But this *naïve* belief in the attainability of private happiness cannot last. The hindrances to personal enjoyments are far too many for any one living in the busy world, subjected to restraints on every hand, to imagine that Individual Eudaemonism is terrestrially realisable. Despairing of happiness *here*, the individualist throws his glance beyond the confines of earth, and fondly imagines blessedness *there*. This transcendent eudaemonism is exhibited in the ethics of the early Chistians, but in that form is no more capable of satisfying the requirements of the moral consciousness, than terrestrial egoism. For, the social continuity being interrupted by death, everything that is most precious here being unknown there, there is no support given to just those forms of activity which are the most prominent in earthly life. A transcendent egoism, moreover, which finds its moral norm in the principle: That is right which will lead to heavenly happiness, needs a revelation of the celestial code, thus paving the way for the next principle of Heteronomy, or External Authority.

He who deliberately makes his own happiness his end is forced to surrender one pleasure after another, in order to retain some chance of happiness at all. And this course continues, until it is at last found that the positive eudaemonism, with which the individual started, has become negative eudaemonism. Hedonism passes into Cynicism. First apathy, then contempt for life. The Stoic's self-renunciation, or moral indifferentism, passes into utter disgust for every form of earthly action. But there is one step more to take. Life being discovered to be worthless, why consent any longer to bear its daily burden? The choice lies between Suicide and Asceticism. If there be no future life, suicide would be the more rational; if this life be not all, asceticism might be the more prudent course, but only at the cost of rendering continued existence utterly valueless, and thereby rendering it utterly meaningless. Egoism has thus ended by becoming "bankrupt". Its last word is Self-renunciation, denial of the principle itself. But a man who has discovered the vanity of the search for personal pleasure, if he shrinks from the practically logical consequence of his guiding-principle, will only be able to evade that consequence, by surrendering his self-confidence and submitting to an authority outside himself. The Egoist has gained something by the practical discipline of life—he has learned the *necessity of self-renunciation,* and that is the contribution of this pseudo-moral Egoism to the erection of the moral fabric. But there is something more wanted before the human mind can become truly moral: there is the need of an engrained reverence for Law. And that reverence must be gained through obedience to rules authoritatively imposed from without. Von Hartmann briefly reviews the various forms of Heteronomy, the authority of the Family, the State, the Church, the Divine Will, and shows the relative value of each, according to the intellectual elevation of those submitted to the rule; but they cease to be sufficient as soon as the individual regains the self-trust which the failure of his first attempt at self-guidance led him to renounce. Summoning up courage at length to criticise the authorities which profess to offer an infallible help, he discovers that they are only mediately authorities, that they are only to be trusted so far as they repose on right reason and pure feeling. At this stage the heteronomous education is completed, and henceforth the rule of action can only be *autonomous,* the genuine moral consciousness being now born.

We now enter upon the main theme of the book. This second part has three divisions—the Springs of Morality, the Ends of Morality, the Ultimate ground of Morality; the largest space being given to the Springs of Morality. These are the subjective principles of Taste, Feeling, and Reason. The question to be answered first is: Do we instantaneously give expression to feelings and judgments on actions, entirely without regard to their bearing on personal well-being, or without reference to their conformity with any external code? The answer is that we do, and in a three-fold form. Goodness or badness is implied in our æsthetic judgments, we feel drawn to or repelled from certain modes of conduct, and we peremptorily judge this course to be right and that to be wrong. It should be observed that the question is not here raised as to the genesis of these mental phenomena. The inquiry is one merely of matter of fact, not of psychological origin. It would not be possible in the present notice to review in detail all the forms of the subjective moral principles here described. Under the head of Taste, the author treats of the principles of Harmony, Perfection, and the Ethical Ideal. The justification for taking Taste first is not that it is the more elementary psychical form, yielding in that respect to Feeling; but because it is more independent of the special object-matter, and therefore seems better adapted to lead the mind to acknowledge the reality of subjective morality as a general form of consciousness.

Indispensable as Feeling is as a moral factor, it is an error to found a system on this most subjective of all principles. Love, compassion, even the feeling of duty itself, have a moral value, not in their own right, but only so far as they unconsciously serve an end; in other words, they must be *rationalised* before they can be pronounced ethical. Feeling and Taste are particular and concrete in their application, but the Moral Law is general and abstract; hence Reason must be taken into the account as the third and highest subjective principle. Von Hartmann treats at great length of the rational impulse. A discussion of Moral Freedom leads him to examine fully the Free Will controversy, his conclusion being that the belief is the result of a confusion of self-positing with immediate-positing in willing, and irreconcilable with the fundamental conditions of moral life. The highest form of subjective rationalism is to be found in the idea of purpose or design. The world can only be rationally conceived as a system of graduated ends. Refuse to admit the idea of purpose *(Zweck)*, and Morality becomes impossible; for if there be no objective ends on which the subjective principles of autonomy may repose, there is nothing for it but to fall back upon the pseudo-morality of Egoism, or the arbitrary commands of any power which may have strength enough to enforce obedience.

We must pass on then to the objective ends which the subjective principles of Taste, Feeling, and Reason unconsciously imply, and from which they receive their moral character. A man, who has come to perceive the impossibility of setting-up his own happiness as end, will find no difficulty in positing the happiness of others as the proper end of action. Social Eudaemonism is an objective moral end largely recognised, not least in England; John Stuart Mill's essay *On Utilitarianism* being recommended to the inquirer as furnishing the best statement of the doctrine. The recommendation is not very easy to understand, however, because when Hartmann comes to examine the essay critically, he can hardly find language strong enough to express his contempt for its superficiality and confusion of thought. He holds that Mill either failed to see that Egoistic and Universalistic Hedonism are radically opposed principles; or in order to bribe common sense to accept the severer doctrine, perpetrated the pious fraud of representing the endeavour after other people's happiness as the same thing as furthering one's own. The identity of private and public interest herein implied is phenomenally impossible, individuality necessitating antagonism to the very end of the chapter. The stress laid by Mill on Sympathy, and his demand for a Religion of Humanity, should be regarded as unconscious admissions that a phenomenally objective rule cannot be independent, but on the one hand requires the support of subjective feeling, and on the other points to a deeper ground of Morality in the metaphysical unity of the human race. Suppose, now, the principle of the "greatest happiness of the greatest number" to be erected into an exclusive objective moral end, the consequences would, in the view of our author, be anything but desirable. A serious attempt to maximise happiness would lead to an equality of possessions, the abolition of motives to exertion, the reign of ignorance, and finally a reversion to the most pernicious of all principles—the diffusion of beliefs and illusions for the sake of their agreeableness. Thus, all that the world has so painfully striven for—refinement of life, art, science—would go down in the flood of common-place comfort, tasteless art-products and Jesuitism. One cannot help suspecting that Von Hartmann, like the less-gifted of his countrymen, has been scared by the rapid growth of late years of the party of Social Democrats. Such plausibility as his description of the consequences of Social Eudaemonism possesses, is only obtained by the very *un*philosophic procedure of ignoring many of the circumstances of the case, the result being a trivial solution of an unreal problem. In considering what is for the happiness of other human beings, the idea of happiness, as conceived by the cultured few, will form a not unimportant element, so that that universal re-animalisation, which our author announces as the social-eudaemonistic goal, would be a simple impossibility. With regard to the degradation of science and art, it is very doubtful whether the best work even now is done as a result of the pressure of competition. Certainly the highest genius is not productive, either through the stress of competition (which does not exist for it), or with an eye to an appreciative public (which is usually at first lacking). But by the time the levelling process contemplated has gone to extreme lengths, we may suppose the love of truth and beauty will be so firmly rooted, that bad art and pleasant fictions will be condemned even by the many.

Besides General Happiness, our author cites another objective principle—the Development of Culture. Allowing Social Eudaemonism full right as a moral principle applicable to an existing generation, the principle of Evolution is needed to supplement it, in view of humanity being a continually growing organism. As the happiness of the individual must often be sacrificed for the welfare of the community, so the interests of an existing society must be made to bend to the well-being of the future of the race. This is a point of view which has no doubt hitherto been imperfectly adopted. Indeed, it could hardly well be otherwise, seeing that Evolution in the elaborate form of the doctrine as we now know it is so recent. It is, however, probably owing to the slight regard that is paid to the needs of the future, that our books on ethics have such an air of unreality about them, and that so little has yet been done towards a scientific system. Von Hartmann of course lays great stress on this aspect of morality, as his philosophical system as a whole is in effect a Philosophy of Progress, with Teleology as its corner-stone. The pursuit of general happiness now appears in its true light, as means to the awakening of consciousness, wherein consists the *raison d'être* of Humanity. The moral world-order is the complete expression of the two one-sided principles—Social Eudaemonism and Development of Culture. When we severally play our parts in this world conceived as a system of ends, freely surrendering our own welfare, or the welfare of a lower end for the sake of a higher, we are then first truly moral. One thing is clear by this time, that Morality cannot be divorced from theoretic Philosophy. It may be shown most convincingly that man possesses impulses of a social nature, that the pursuit of private pleasure is doomed to disappointment; still it is possible to deny the objective validity of the so-called social principles, and in spite of the failure of Egoistic Hedonism to assert the Absoluteness of the Ego. Von Hartmann rightly calls such a mental condition "the most horrible that can be conceived"; but he avers that to that state we must all come at last, if our view of the world leave no room for an objective Teleology. Phenomenal objective principles hang in the air unless they are based on absolute moral principles which affirm the identity of the essence of the individual with the essence of the absolute. We are driven on to a Metaphysic of Morals, because, on the one hand, the subjective principles can furnish no general rules, and are dependent on the constitution of the individual; on the other, the objective principles, not being *my* principles, have no constraining force. Nor will any mere combination of them suffice; they can only attain their proper influence when the aim of the world is proved to be my aim, and my aim would have no significance unless it were the aim of the whole. The foundation of Morality then is supplied by four principles—the *monistic* principle of the essential identity of individuals, the *religious* principle of essential identity with the absolute, the *absolute* principle of absolute teleology as that of our own essence, the principle of *redemption (Erlösung)* or negative absolute-eudaemonism.

The objective principles of right conduct (to which our subjective consciousness pointed) were two—that it was our duty to further the general happiness, and that we were bound to sacrifice the well-being of a lower order of existence for the sake of a higher. The endeavour after the utmost possible happiness through a continual process of self-renunciation—such was found to be the content of right and moral action. But man's life is a fraction of the Universal Life, his purpose is a part of the Universal Purpose. Transfer the notion of Eudaemonism (Happiness) to the Absolute, and regard the world-process, human activity included, as a necessary aid to its attainment, and we have at once Social Eudaemonism and the self-denying principle of Evolution made intelligible. The essence of all is One: that essence is non-blessed. It endeavours after blessedness, an unattainable state, but which can only be so demonstrated, when the absolute essence is illuminated through the full development of consciousness. The author of the *Phenomenlogy of the Moral Consciousness* is still eloquent in praise of Schopenhauer, and has not receded from the stand-point of the "Metaphysic of the Unconscious". Perfect Duty and true Religion are one—to work to the utmost for the enlightenment of the Absolute Will, and to do that work reverentially and lovingly, feeling that we are labouring to abridge the pains of a God, the term of whose suffering is at the discretion of his creatures. The difference between this theology and that of the Christian Church, for instance, is that we each and all *are* the very God who is awaiting deliverance.

Von Hartmann considers he has now solved all the difficulties in the way of a Theory of Moral Obligation. The challenge, as I understand it, which he throws down to contemporary moralists is—to explain our moral consciousness (1) without basing morality on ontology, and (2) without accepting the ontology which he propounds. He is less concerned for the second point than the first. He thinks his own Pessimism the only metaphysical creed capable of satisfying all the requirements of the problem; but should that opinion prove to be ill-founded, the reasons for a metaphysical support to morality would remain in full force.

W. C. Coupland.

ΠΕΡΙ ΔΙΚΑΙΟΣΥΝΗΣ. *The Fifth Book of the Nicomachean Ethics of Aristotle.* Edited for the Syndics of the University Press, by Henry Jackson, M.A., Fellow of Trinity College, Cambridge. Cambridge: University Press, 1879. Pp. 125.

The correction of a few oversights in Bekker's text and critical notes—sums up the value of this edition. It is to be regretted, however, in the interest of those students who use Zell and Michelet, that Mr. Jackson has not printed his collation of El. along with that of Bekker's MSS.; for Zell and Michelet derive their knowledge of El. CN. and CCC. entirely from Wilkinson (1715), and an examination of Book V. in CCC. has convinced me that Wilkinson's collation is worse than useless, giving a perfectly false idea of the character of the MS. which closely resembles K^b without being a transcript of it. It is probable that he is as misleading with regard to El.

Mr. Jackson's extensive re-arrangement of the Book is scientifically inadmissible even as an hypothesis, because it cannot be decisively tested. His test, *lucidus ordo*, is not decisive, for the author or ancient editor may have been satisfied with much less order than Mr. Jackson is; and supposing "Dislocations," as he says, to have taken place, we cannot deal with them after the manner of the editors of Lucretius, by reconstructing an archetypal MS. The attempts at least to reconstruct one have not been of a very promising nature, and Mr. Jackson, I observe, does not notice them. Young students, however, will welcome Mr. Jackson's *lucidus ordo;* and I can imagine nothing more demoralising for them than the feeling that difficulties *may* be effaced in Mr. Jackson's way. Nor do I think much of Mr. Jackson's order, even as a device in hermeneutic. *E.g.*, his treatment of 6 §§ 1-5 simply obliterates a valuable piece of dialectic. Surely τὸ ἀντιπεπονθός in § 3 is introduced to show, by reference to a principle which neglects motives, that we must not overlook the προαίρεσις of the agent (§§ 1 and 2), while §§ 4 and 5 analyse τὸ πολιτικὸν δίκαιον and νόμος with the object of showing that we can infer an unjust motive from the acts of the πλεονέκτης at least.

Nowhere can I see in this edition any due appreciation of the general philosophical bearings of Book V.; and the Notes on particular difficulties of interpretation not involving "dislocations" will not help the student who possesses previous editions, if they do not mislead him by their eccentricities. *E.g.*, Mr. Jackson's eccentric treatment of 5 § 9 is rendered unnecessary by the note of Michael Ephesius *ad loc.* to the effect that τὸ ποιοῦν is *ex vi termini* the *superior* producer—'The trades would perish unless, A supplying wares of a superior bulk or quality, B were able to express this superiority (ἔπασχε τοῦτο καὶ τοσοῦτον καὶ τοιοῦτον) in terms of his own inferior wares'. On 5 § 12, Mr. Jackson follows old grooves. Although he speaks of "one pair of shoes *on account*," he fails to see, from the prominence of νόμισμα in the context, that ὅταν ἀλλάξωνται implies the exchange of A's goods for B's money, or rather credit, not the exchange of goods by both parties. The § merely puts the principle stated in *Eth.* IX. i. 9: that the receiver (τὸ ἕτερον ἄκρον, the inferior party) fixes the price, but *before* the goods are delivered. Mr. Jackson's explanation of ἡ κατὰ διάμετρον σύζευξις (5 § 8) has been anticipated by Mansel (*Journ. of Class. and Sac. Philol.* i. 344, 1854). To make τὸ ἁπλῶς δίκαιον (6 § 4) the genus of which τὸ δεσποτικὸν δίκαιον, &c., are species, is to mistake the obvious purport of the context, which states that τὸ δεσπ. &c., do not realise the notion of justice (τὸ πρὸς ἕτερον) at all. Ἁπλῶς is a word with many shades of meaning, and must always be interpreted in relation to its particular context. Mr. Jackson's treatment of it here betrays unfamiliarity with a very important point in Aristotelian usage. The beginner who adopts Mr. Jackson's view here will see the whole Fifth Book in a wrong light. I had marked other Notes for comment, but have no further space. I can only say that where they vary from those of previous editors, they are meagre and eccentric. The import of the book, as an integral part of a great philosophical system, is ignored, and every thing is sacrificed to a hasty and unscientific attempt to mend assumed "dislocations".

One word in conclusion on Mr. Jackson's "translation or paraphrase". I do not think that he gains "precision and perspicuity" by leaving in Greek all the technical words and formulæ. I should have thought that the rendering into English of such words and phrases, in an author like the present, was the only way to put one's precision and perspicuity of thought to the test. Aristotelian scholarship in England is happily too familiar with excellent equivalents for the terms in question to countenance Mr. Jackson's version. Beginners struggling with the Fifth Book may indeed be pleased to learn that they need not find renderings for the hard words; but even this natural joy will be marred, I should think, by such unsatisfactory pigeon-English as the following :—"A man is *δίκαιος* when he *δικαιοπραγῇ* of deliberate purpose". "Who is it whom he *ἀδικεῖ*?". "If the distributor give his judgment *ἀγνοῶν* he *οὐκ ἀδικεῖ κατὰ τὸ νομικὸν δίκαιον*."

J. A. Stewart.

IX.—NEW BOOKS.

[*These Notes are not meant to exclude, and sometimes are intentionally preliminary to, Critical Notices of the more important works later on.*]

Selections from Berkeley, with an Introduction and Notes, for the Use of Students in the Universities. By A. C. Fraser, LL.D., Professor of Logic and Metaphysics in the University of Edinburgh, Second Edition. Revised and Enlarged. Oxford: Clarendon Press, 1879. Pp. xlviii., 366.

The appearance of a new edition of Professor Fraser's *Selections from Berkeley* is a favourable sign of the interest now taken in the study of pure philosophy. Few writings are so well adapted as those of Berkeley for introducing the English student to the line of modern metaphysical thinking which finds its natural termination in Kant. With the assistance of the notes supplied by the editor, the student of Berkeley's writings can hardly fail to have his attention awakened to the nature and conditions of those speculative problems only dimly apparent in that writer. Nothing can exceed the fairness and judicial candour with which Professor Fraser points out the inadequacy of what are fundamental theorems in the Berkeleyan system—*e.g.*, the doctrine of abstraction, the theory of external reality, and the theory of causality. The notes on these and other special subjects are most helpful. In the present edition it is possible to trace a more constant reference to later writers, such as Kant, than was previously given.

The Introduction has been re-written and re-arranged. In its new form it contains an accurate and lucid account of the development of modern thought from Descartes to Hume, sketching the history of the fundamental philosophic problem from its first statement to the point at which it passed into the hands of Kant. The student of Berkeley could not well have a more thorough introduction than is here supplied. Perhaps, as is natural, the editor assigns a more important place in this movement to Berkeley than can fairly be granted to him. The entire novelty of Berkeley's question cannot, we are inclined to think, be altogether admitted. He did, undoubtedly, effect a great and important change in the mode of viewing certain philosophic problems, but it was through insistence on the necessity of applying the new analysis to all philosophic notions rather than through radical change in the method of analysis. In all fairness, too, it must be said, that the first statement of Berkeley's new principle, that by which he has taken a place in the historic sequence of modern thinkers, was by no means adequate to the problems left unsolved by Cartesianism, and was so modified in the course of Berkeley's own development as to assume an altogether new aspect. For our part we should be inclined to say that Berkeley is interesting, both in the history of philosophy and for the student, because he contains in an imperfect, half-developed manner, the germs of two important lines of later thinking. On the one hand his early empiricism, that by which he is historially known (*e.g.*, to Reid and Kant), is but an incomplete anticipation of Hume: while, on the other hand, the deeper, more spiritual side of his thinking, never in him worked out to its logical issues, but becoming in him always more prominent, is an imperfect, crude foreshadowing of the Kantian thought. Containing, thus, fundamental ideas which point in two directions, Berkeley is peculiarly well fitted as the subject of first studies on the history of modern philosophy. As above said, the notes in this second edition seem to recognise very fully the half-developed character of Berkeley's speculations, and point continuously to the quarters in which they find completion or rectification. [R. A.]

The Balance of Emotion and Intellect: an Essay introductory to the Study of Philosophy. By Charles Waldstein, Ph.D. London: Kegan Paul & Co., 1878.

The aim of this work is "to bring forth the feeling for philosophy, the philosophical spirit and mood, *der philosophische Sinn*, as the Germans would call it"; the growth of such a spirit being hindered by the erroneous assumption that certain antitheses and incompatibilities obtain amongst important departments of culture, as, *e.g.*, between Emotion and Intellect, Fine Art and Science, and again between Common Thought and Science, Science and Philosophy. There is a tendency among some men of science "to favour Intellect, and to disfavour, if not actually to repress, Emotion"; whereas both powers are equally necessary, that to guide, and this to impel us to action. And as for Common Thought, Science and Philosophy, so far from being truly opposed to one another, they are merely, as Mr. Spencer observes, successive stages in the development of cognition. These and similar errors obstruct the formation of the philosophical mood; and the best way to dissipate them is to encourage and foster that mood as much as possible. Accordingly, the author says, "contrary to recently expressed views" (perhaps referring to a discussion in Mind, No. X.), "I found that the best means of producing this mental attitude was to give a short history of philosophy". Such a history accordingly occupies the larger and central portion of the book. In order to make it useful to beginners, Dr. Waldstein has disencumbered it of technicalities and simplified it as much perhaps as the matter would permit. He tries to show how the History of Philosophy answers the great questions about "the mighty sum of things forever speaking," as they may (by a stretch of imagination) be supposed to arise in the mind of a youthful inquirer. At the close of the historical chapters, he says: "One of the most important of the results derived from the study of the History of Philosophy is a cultivation of intellectual sympathy, the power of transplanting ourselves into the different modes of thought of different individuals in different ages and climes, of thinking with and in others: and in thinking with others we learn to feel with others". The author then adds some observations upon the characters of various classes and nations, in so far as they are remarkable for deficiency or excess of intellect or of emotion; and ends with an appendix upon the emotional endowments of Germany and England, as illustrated by a comparison of their languages. Fortunately the result is unflattering to the only nation that does not love flattery ("being then most flattered" when told so?). But perhaps language is not the surest clue to feeling: other things equal, we might expect that nation to be richest in the language of emotion which had had least opportunity of venting it in action. Is not this a better criterion of the right balance of national character: Which nation needs least government? [C. R.]

Philosophy: Historical and Critical. By André Lefèvre. Translated with an Introduction by A. H. Keane, B.A. London: Chapman & Hall, 1879. Pp. xxiv., 598.

This work is divided into two parts, the first of which passes in rapid review the various historical systems of philosophy from "the period of the cosmogonies" to Auguste Comte and Herbert Spencer. Its five chapters deal respectively with Primitive Times ("from the Thirtieth or Fortieth to the Seventh Century" before Christ); Antiquity; the Intermediate Period; the Renaissance; and Modern Times. The second part consists of a *résumé* of the author's own views, which resolve themselves into a crude materialism, not unlike that of Dr. Johnson, grafted on to the evolution theory. M. Lefèvre criticises the various philosophies with which he deals from his own standpoint. His account of each system is meagre in the extreme—he gives just one page to Berkeley and four to Hume—and his judgment is much more influenced by the tendency of any philosophy as regards religious belief than by its real content. Altogether the work was hardly worth writing in France, and certainly not worth translating into English. It is characterised throughout by a fierce opposition to clericalism and Christianity, often expressed in a most offensive tone, and always colouring both the critical and the positive part of the book. The polemical style of the first part is fatal to the exegetical value of the work, which, for the rest, displays no great personal acquaintance with the authors criticised, except those who have written in French. The second part—divided into four chapters on the Universe, the Living World, the Intellectual Mechanism in the Individual, and the Intellectual Mechanism in Presence of the Universe and Society—contains a brief sketch of evolution, physical, organic and social, but nothing which the English reader cannot better obtain elsewhere. It is greatly disfigured by its dogmatic materialism, and its absolute denunciation of any attempt to investigate the relations between subject and object,—the latter apparently a legacy of Comtism, which in other matters the author disavows. The translation is very indifferently performed, and often fails to bring out or even positively distorts the meaning of the original. Altogether a feeble declamatory work, weakly written and badly translated. [G. A.]

Chapters on the Art of Thinking: and other Essays. By the late JAMES HINTON. With an Introduction by Shadworth Hodgson. Edited by C. H. Hinton. London: Kegan Paul, 1879. Pp. 393.

This volume, edited by the lamented Hinton's son and introduced by his intimate friend Mr. Sh. Hodgson, is composed partly of manuscript papers left in a form ready for publication, partly of essays previously published in literary or scientific periodicals. The "Chapters on the Art of Thinking," hitherto unpublished, are five in number (pp. 15-46) and date from 1872. The majority of the Essays have already seen the light in one way or other, but they are now most fortunately brought together. Particularly welcome, by the side of two other articles (republished) of an ethical character, is the appearance of the exquisite little essay "Others' Needs," formerly not to be had without difficulty in the shape of an anonymous tract. Besides four more properly "Scientific Papers," the volume also includes under the title of "Recollections" some records, from different sources, of Hinton's conversations or rather monologues on favourite topics. Of the volumes (printed for his own private use) containing his thoughts in the fruitful years from '59 to '63, and again from '69 to '70, no use has been made in the present collection, but the hope is held out that at some future time something of their contents may be made public. Mr. Hodgson, in his fine introduction, seeks especially to bring out a fundamental affinity of thought between Hinton and Coleridge.

The Metaphysics of John Stuart Mill. By W. L. COURTNEY, M.A., Fellow of New College, Oxford. London: Kegan Paul, 1879. Pp. 156.

"This book deals with some of the main metaphysical problems in Mr. Mill's philosophy,—the subjects successively discussed being 'Consciousness,' 'Body and Mind,' 'Primary Qualities of Matter,' 'Causation,' 'Necessary Truths,' and 'General Ideas'. In each of these the author attempts to prove the difficulties of Mr. Mill's Sensationalistic and Empirical position, contrasting it with the Idealistic solution of Kant. An Introduction, commenting on the possibility of Metaphysical progress, and an Epilogue, summing up the main characteristics of Mr. Mill's philosophy as standing half-way between the Sensationalism of Hume and the Scientific Empiricism of Spencer and Lewes, complete this little volume."

Superstition and Force. Essays on 'The Wager of Law,' 'The Wager of Battle,' 'The Ordeal,' 'Torture'. By Henry C. Lea. Third Edition, revised. Philadelphia: Henry C. Lea, 1878. Pp. 552.

The first three of the Essays brought together under this somewhat fanciful title originally appeared in a greatly condensed form in the *North American Review.* In their book-form, all four have been added to in the present edition by a clearer indication than before of "the source in prehistoric antiquity of some of the superstitions which are only even now slowly dying out and which ever and anon re-assert themselves under the thin varnish of modern rationalism". The truly psychological spirit in which the author conducts a quite admirable investigation over a historical field of vast extent cannot be better displayed than in these words of his own:—

> "The history of jurisprudence is the history of civilisation. The labours of the lawgiver embody not only the manners and customs of his time, but also its innermost thoughts and beliefs, laid bare for our examination with a frankness that admits of no concealment. These afford the surest outlines for a trustworthy picture of the past, of which the details are supplied by the records of the chronicler. It is from these sources that I have attempted, in the present work, a brief investigation into the group of laws and customs through which our forefathers sought to discover hidden truth when disputed between man and man. Not only do these throw light upon the progress of human development from primitive savagism to civilised enlightenment, but they reveal to us some of the strangest mysteries of the human mind."

De l' Intelligence. Par H. Taine, de l'Académie Française. 3me Edition, Corrigée et augmentée. 2 Tomes. Paris: Hachette, 1878. Pp. 419, 492.

The present edition of M. Taine's psychological work (originally published in 1869, and shortly afterwards translated into English), while considerably extended, especially in the first or analytic part, is yet presented in a reduced form, which makes it a much handier book than before. The chief additions to the text are in the chapter on the Functions of the Nervous System, which is not only brought up to the level of the more recent investigations but contains in a new section (I. pp. 291-315) a rather elaborate speculation as to the mechanism of the thinking organ. M. Taine reprints as an appendix to Vol. I. the note "On the Acquisition of Language by Infants and by the Race" which appeared in the first number of the *Revue Philosophique*, and of which the first half was translated in Mind VI., calling forth further contributions by Mr. Darwin and Mr. Pollock to the natural history of infant mental life. He also appends to Vol. I. two other psychological records—one a case of "progressive hallucination with reason intact," and the other a case of "acceleration of the play of the cortical cells," supporting the view that in special circumstances, like what is reported of people saved from drowning, the flow of representation may be indefinitely quickened. Vol. II. has added to it a note "On the elements and formation of the idea of the Ego," as disclosed in the pathological cases described by Dr. Krishaber under the name of "cerebro-cardiac neuropathy" (Paris: Masson, 1873). The general preface to the work is also considerably extended, including a striking statement of the chief desiderata of psychological science at the present time, and a summary of what M. Taine considers his own positive contributions to it. It cannot be said that he in the least exaggerates the amount or value of his performance. Though the merits of his book have never been overlooked since it made its mark on first appearing, it has hardly even yet received all the praise it deserves for its admirably methodical exposition and for its firm scientific handling of many of the most perplexed psychological questions.

Petit Traité de Morale à l'usage des Écoles primaires laïques. Paris: Au bureau de *La Critique Philosophique*, 1879. Pp. 195.

The two first parts of this work ('Morality of Childhood,' 'Morality of Adults') have already appeared in the *Critique Philosophique* from time to time since 1875; not so the third part ('General Morality'). The basis of the work is supplied by Dr. W. Fricke's *Sittenlehre für confessionslose Schulen* (Gera: Strebel, 1872), of which an English translation exists under the title of *Ethics for Undenominational Schools* (London: Grant, 1872); but, while seeking to incorporate all they could from their German predecessor, MM. Renouvier and Pillon have freely altered the order and treatment of topics "wherever this was necessary in order to substitute the methods and ideas of criticism for vaguer doctrines of mixed origin and imperfectly rationalised". "It is not yet in the country of Kant (they add) that the morality of Kant is best understood." In particular, they have sought "to strengthen the principle of Right, to set rights over against duties wherever this was necessary, to complete or point the definitions and precepts, and this progressively in such a way as to end by binding together the fundamental notions after the manner of less elementary works". Like Dr. Fricke's original book, the present one is sent forth as a first draft to be filled in and amended by the co-operation of all who are concerned in the education of the people on a basis of rational morality. It is fresh evidence of the zeal and insight with which MM. Renouvier and Pillon continue their philosophical crusade.

La Science positive et la Métaphysique. Par LOUIS LIARD, Professeur de Philosophie à la Faculté des Lettres de Bordeaux. Ouvrage couronné par l'Académie des Sciences morales et politiques. Paris: Germer Baillière, 1879. Pp. 485.

The object of this work, inspired by the formal teaching its author received from M. Lachelier at the École Normale, as also by the ideas of M. Renouvier, M. Ravaisson and M. Secrétan, is to show that Metaphysic, which once stood for all human knowledge, has not been so displaced by the special sciences as that beyond their results there is nothing left to occupy the mind. Beyond *phenomena* men must still seek to know the *absolute*, beyond the *conditions* the *reason* of things; and Metaphysic has thus an inalienable province. But it is not its proper function to aim at being a science of first principles and first causes, as the ancient philosophers dreamt of, and as generation after generation of thinkers have ever since vainly attempted to prove it. The Metaphysical notion of the Absolute is a purely moral one, as Socrates alone among the ancients divined, and as Kant, among the moderns, was first able clearly to establish.

Étude sur la Vie et les Œuvres philosophiques de G. Berkeley. Par A. Penjon. Paris: 1878. Germer Baillière. Pp. 448.

M. Penjon, who has already in the pages of the *Revue Philosophique* shown competent acquaintance with more recent English speculation, gives in the above work a clear and succinct account of the life and philosophy of the writer who in many respects has had the greatest influence in determining the course of English thought. For the facts of Berkeley's life, and for the greater portion of the brief summaries of Berkeley's works, M. Penjon, as he amply acknowledges, is indebted to the careful labours of Professor Fraser. So far as English readers are concerned, indeed, the *Étude* has little or no value, as it merely reproduces, often *verbatim*, what can be had in Professor Fraser's volumes. The conclusion (pp. 370-448), containing M. Penjon's contribution to the discussion of the questions raised by Berkeley, consists of seven brief sections or articles of rather too slight texture to require special notice. At the same time full credit must be given to him for the ability and completeness with which he has presented Berkeley to French readers.

Geschichte der neuern Philosophie. Von Kuno Fischer. Erster Band, Erster Theil. Dritte neu bearbeitete Auflage. München: Bassermann, 1878. Pp. 440.

In publishing a third edition of the first volume of his now well-known *History of Modern Philosophy,* the author reminds us that, since he published the second edition of the same volume, he has carried forward the exposition beyond Kant to Fichte and then to Schelling. Now he stands face to face with the last part of his great task—the treatment of Hegel and the later developments of philosophy down to the present day. In the new edition here begun, the work, which has grown to a size not originally intended, will be brought as far as possible into a more compressed shape, partly by the adoption of a different type, but also by a systematic revision of the whole exposition. The compression will make room, where necessary, for extensions; as, in the present first part of Vol. I., there is a considerable increase in the General Introduction dealing with earlier philosophy, especially the sections on the periods of the Renascence and of the Reformation. Account has also been taken of the latest new researches bearing on Descartes. It is needless to remark on the merits of Fischer's treatment of Descartes. The volume has become indispensable to the student of modern philosophy, and, being no longer to be had in the first or second editions, is greatly to be welcomed in its new and improved form.

Studien über das Bewusstsein. Von Dr. S. STRICKER, Universitäts-Professor in Wien. Wien: Braumüller, 1879. Pp. 99.

Dr. Stricker, the eminent physiologist, publishes here in a separate form for general readers his studies on Consciousness, begun with reference to pathology and already embodied in a larger work addressed to medical men. The studies here reproduced are all of a character to be understood without professional training, and deal with common questions of psychology, only taken up with the freshness of spirit that is apt to mark the inquiry of really good scientific heads when they turn from their own to a related department of science. The little work is brimful of suggestive observations—not least suggestive where they might perhaps be modified by further inquiry. In particular, should be noted the author's peculiar view that every sensation has bound up originally with it a double consciousness of locality—as occupying a definite place centrally (in the head) and a definite place peripherally. "Seated (he says) in the head, Consciousness knows—apart from all exercise, from all other indications and on the very first excitation—that something is going on at definite places of the peripheral nerves; and this amounts to saying that Consciousness reaches from the brain into those nerves as its outposts."

Metaphysik: Drei Bucher der Ontologie, Kosmologie und Psychologie. Von HERMANN LOTZE. Leipzig: Hirzel, 1879. Pp. 604.

This volume is the second of the series in which the author is embodying his System of Philosophy. The first volume, which appeared in 1874, contained his Logic, and the present one includes the whole of his Metaphysic. In its latest form his metaphysical system has diverged even more widely from Kantianism than was the case in the book published under a similar title in 1841; and all the traces of Hegelian influences, which were then apparent, seem now to have disappeared. The volume, as its title indicates, is divided into three books, which deal with the Relations of Things (Ontology), the Course of Nature (Cosmology), and Spiritual Existence (Psychology) respectively. The remaining volume of the series will treat of Practical Philosophy, Æsthetics and Philosophy of Religion.

Die Schein-Bewegungen. Von Prof. Dr. J. J. HOPPE, Doctor der Medicin et Philosophie. Würzburg: Stuber, 1879. Pp. 212.

A remarkably thorough investigation, from the physiological point of view, of the extraordinary variety of *apparent* movements which we are liable to experience in the way of perception. These are grouped by the author round the impressive case where a river-bank seems to move to the spectator standing upon it; the explanation of this case, which can be distinctly studied in connexion with the muscular and sensitive structure of the eye, leading on to an understanding of the others, both those that are related and those that are different in character. He touches but slightly the apparent movements of hallucination, and leaves aside, for want of space, the apparent movement of double images; but otherwise almost the whole multitude of cases is treated. Information is given as to the earlier attempts at explanation; and the author ends with a short excursus into the general theory of knowledge viewed in the light of his particular research. The investigation is one of that *special* kind that is most wanted in the present state of psychological science.

Monaden und Weltphantasie. Von J. FROHSCHAMMER, Professor der Philosophie in München. München: Ackermann, 1879. Pp. 181.

This work is a sequel to the author's *Die Phantasie als Grundprincip des Weltprocesses* (1877), critically noticed in MIND VI. The first part is a short re-exposition of the main ideas of that book, intended to remove misunderstandings. The second part is an exposition and criticism of the various modifications of the doctrine of Monads from Leibnitz through Herbart to contemporary philosophers like J. H. Fichte, Carrière, Ulrici, and contemporary men of science—Preyer, Nägeli, Häckel, Zöllner. In the author's former book this line of "monadological or individualistic" speculation received less attention than the other line of more properly "monistic or dynamical" thought which, in the manner of Spinoza, seeks to account for the variety of phenomena from the absolute unity of Substance. The author's own position in the middle is—that true monistic explanation, that is to say, of *real* individuals from a single principle, is to be had only upon the assumption of "Phantasy" as that principle.

Analisi fisiologica del Libero Arbitrio Umano. Del Dottore ALESSANDRO HERZEN. Terza Edizione. Firenze: Bettini, 1879. Pp. 271.

Professor Herzen's work first appeared as little more than a pamphlet, and was then considerably extended in a second edition (1870). Still farther extended and revised, it next appeared in a French translation in 1874, under the title *Physiologie de la Volonté* in Baillière's 'Bibliothèque de la Philosophie Contemporaine'; and the present third edition is a reproduction of this last in Italian. Two articles by the author are appended (one a polemic against spiritualism in the form of a letter to Professor Luigi Ferri, the other on some modifications of individual consciousness); besides a statement of the theory of Responsibility based on the negation of free-will, extracted from a work by Dr. Enrico Ferri.

Sulla Dottrina psicologica dell' Associazione. Saggio storico e critico. Di LUIGI FERRI, Professore di Filosofia nella Regia Università di Roma. Roma: 1878. Pp. 92.

A dissertation republished from the proceedings of the Accademia dei Lincei (16 June, 1878). The author divides his compendious survey of Associationism into three parts, devoting attention mainly to the work of English thinkers, but making side-references, where necessary, to others. The first part traces the doctrine from Hobbes and Locke to Hartley; within which period (between Hume and Hartley) falls the work of the Bolognese Francesco Maria Zanotti, *Della* *forza attrattiva delle idee* (1747). In the second part, "the intermediate period of criticism and restriction," beginning with Reid and prolonged in Stewart and Hamilton, is briefly characterised, with side-reference to the Italians Galluppi and Rosmini, and to Herbart and Condillac. The third and largest part deals somewhat minutely with the two Mills, Professor Bain, and Mr. Spencer. Finally, in an epilogue, the author expounds his view of the imperfections and shortcomings of Associationism, even at its best, as a philosophical theory of knowledge.

X.—MISCELLANEOUS.

Professor William Kingdon Clifford died of consumption at Madeira on the 3rd March, in his 34th year. None of those who took leave of him two months before, when he sailed for the warmer climate that might lengthen out his days a little, can be surprised that the end has come so soon; yet none can have so reconciled themselves to the inevitable as to hear of it at last without the most poignant regret. It is calamitous that this splendid intellect should cease when it had just come near to satisfying itself of the range to which its proper activity might extend. While nobody could come into any sort of personal contact with Clifford and escape the charm of his nature—a charm that won him troops of devoted friends, nobody could become really intimate with him and not recognise the presence of one of those rare minds fit for the exactest work of science yet endowed with the habitual elevation of view that can only be called philosophic. One dwells upon the character of the man, because his work has been fated to remain for the most part a promise. Even in mathematics which had his first devotion, his fame lies less in actual performance than in the sense which the greatest of his contemporaries had of his almost unlimited faculty. But everything he did accomplish in that field has the stamp of genuine originality on it; while nothing could surpass the skill with which he interpreted to his countrymen those newer geometrical conceptions that have sprung from the fertile brains of the philosophical mathematicians of Germany. In philosophy he had a passion for clearness; he had also a singular docility and candour. And if the note of the philosopher is to seek for the highest and widest truth with a fixed regard to the guidance of human conduct, surely no one was ever more a philosopher. To those who saw him passing calmly through suffering into the unknown, with brain as marvellously active and heart as full of the enthusiasm of humanity as in the day of his strength, he leaves the memory of a bright and dauntless spirit whose like they will hardly meet again.

He was born at Exeter on the 4th of May, 1845, and, after being at school there, was educated at King's College, London, and Trinity College, Cambridge. His mathematical studies were mixed with classical learning, before they became supplemented by philosophy.

Impatient of the academic routine at Cambridge, he yet missed only the very highest honours at the end of his student-career in 1867, and was soon afterwards elected Fellow of his College. From being assistant-tutor at Trinity he passed in 1871 to the chair of Applied Mathematics and Mechanics in University College, London, which he held till the time of his death, though he was disabled from lecturing for about a year before. He was made Fellow of the Royal Society in 1874. The *Royal Society Catalogue* mentions 16 mathematical papers which he published between 1863 and 1873, besides the printed report of the lecture "On some of the Conditions of Mental Development" delivered at the Royal Institution in 1868,—the first of the series of brilliant addresses or articles on scientific or philosophic subjects by which he has become most generally known. The more important of these are the following: "On the Aims and Instruments of Scientific Thought" (*Macmillan's Magazine*, 1872); "Body and Mind" (*Fortnightly Rev.*, 1874); "The Ethics of Belief" (*Contemp Rev.*, 1875); "Philosophy of the Pure Sciences" (*Contemp Rev.*, 1874, 1875, *XIXth Century*, March, 1879); "On the Nature of Things-in-themselves" (MIND IX.). His *Elements of Dynamic*, Part I. (Macmillan) appeared in 1878. Shortly before his death, at a meeting of his friends at the Royal Institution (the President of the Royal Society in the chair), it was resolved, in view of his enforced retirement from active work, to make "public recognition of his great scientific and literary attainments" by raising a fund to be placed in the hands of Trustees for the benefit of himself and his family. Subscriptions will still be received for his wife and two children by Messrs. Robarts, Lubbock & Co., Lombard Street, E.C. (to be paid to the Account of "The Clifford Testimonial Fund").

Prof. Campbell Fraser, of Edinburgh, has undertaken to prepare for the Clarendon Press a library edition of Locke's *Essay concerning Human Understanding*, with an Introduction, Memoir, Excursuses, &c., in two octavo volumes, uniform with his edition of the *Works* of Bishop Berkeley. Locke's *Essay* has been many times reprinted since its first publication in 1690, but the want of an annotated edition has been made matter of reproach to Englishmen by critics and historians of philosophy. It is now proposed to supply this deficiency, under the auspices of Locke's own University of Oxford, in an edition with a revised and interpreted text, and with discussions connecting Locke, for the modern reader, with his contemporaries and predecessors, as well as with the later course of thought in Europe and America. Prof. Fraser will be obliged to anyone who will send him special information on the subject, to 20 Chester Terrace, Edinburgh.

The Editor of MIND has undertaken to write for Messrs. Macmillan's series of *Elementary Lessons in Science* a short manual of Psychology, which, while forming an introduction to the study of the Science generally, will keep specially in view its practical bearings on the work of Education.

As we are going to press, M. Ribot's promised work *La Psychologie Allemande Contemporaine* (Germer Baillière), dealing with the Experimental School from Herbart to Wundt, has come to hand. It will receive due notice later on.

A new two-monthly journal has begun to appear at Oporto under the title *O Positivismo*, understanding Positivism chiefly in the sense of Comte as interpreted by M. Littré, and covering very much the same ground as the long-standing French review *La Philosophie Positive.*

Dr. Julius Frauenstädt, the devoted disciple, editor, biographer and expositor of Schopenhauer, died at Berlin on the 15th January, in his sixty-sixth year.

Busy St. Louis in the far West finds even the *Journal of Speculative Philosophy* not speculative enough or not philosophical enough for its taste, and means to have another quarterly periodical—really and entirely devoted, this one, "to the advocacy of Philosophy in its actual and ideal comprehension". It will be called *The Philosopher* (English agents, Trübner & Co.), and the spirit of it may be gathered from the following sentences in its prospectus :—

"It is a lamentable fact that the current thinking discusses the ideal as scientifically invalid, and exults in the repudiation of all knowledge not exclusively derived from the senses. The very term, Idea, together with its content, has suffered degradation, even unto perdition, in the atmosphere of human sense. It is necessary that Philosophy itself, the 'Science of Sciences,' be rescued from its oblivion in the sensuous consciousness of the age, and restored to its own peculiar and distinctive sphere—the Intelligible Order—from which the physical world and all sensible things are constituted—in which Nature and all true Science ground their procedure.

"At the present time, though there are various journals which give more or less attention to the presentation and discussion of philosophical speculations and systems, there is none specially devoted to this aim, and this vacant niche in periodical literature *The Philosopher* proposes to fill. It will be principally, therefore, the exponent of Platonism and Mysticism, the organ of communication for those of our generation who are disposed to the study of Divine Philosophy, and the vehicle of the profoundest thought of this and past ages."

The Rev. J. Fordyce of Great Grimsby sends the following :—

"In a work on Theism by the Rev. E. R. Conder, M.A. (*The Basis of Faith*, being the Congregational Lecture for 1877 : Hodder & Stoughton), there is a chapter on the Nature and Validity of Knowledge which has not, so far as I know, been examined critically by any of our British philosophers. The theological character of the book may have something to do with its being overlooked. This chapter is devoted to Metaphysics, and has an independent character and value, though of course related to the book. In order that some of the readers of MIND may be tempted to examine and discuss Mr. Conder's theory, I give his concluding summary. He claims to have 'made good the following theses' :—

(1.) That human knowledge, being dependent for development on language, imitation and instruction, is collective ; implying in its very existence the mutual action of at least two minds.

(2.) Consequently, that no criticism of knowledge can be valid which proceeds from the standpoint of a single isolated mind.

(3.) That the Relativity of Knowledge involves a fourfold relation : (*a*) of each mind to outward nature, (*b*) of nature to each mind and all minds, (*c*) of the parts and elements of nature to one another, (*d*) of human minds to each other.

(4.) Consequently, that any doctrine of the Relativity of Knowledge which takes account solely of the relation of the Subject to the Object, or of Reason to Phenomena, must be so defective as to be virtually false.

(5.) That the Relativity of Knowledge in place of being any impediment, disability or limitation to our knowledge, is that which renders knowledge possible, and on which its worth and truth depend.

(6.) That there are no 'things-in-themselves' out of relation to other things and to the First Cause.

(7.) That knowledge is composed of judgments ; the criteria of the judgments composing it being truth and certainty.

(8.) That our primary judgments have no logical subjects, but are predicated either of phenomena immediately present to consciousness (or represented in memory), or of those realities of which phenomena are natural signs ; namely, (*a*) self, (*b*) other selves or (*c*) causes, that is, forces or centres of force external to the mind.

(9.) That while a large part of our knowledge is conversant about phenomena, our ultimate judgments, in which the application or use of knowledge lies, respect the realities underlying phenomena, of which realities phenomena are the natural signs.

(10.) That the truth of judgments, and consequently the validity of knowledge, depends not on any resemblance of thoughts to things, but in a correspondence of relations, that is, in the facts of nature being so related to one another as our judgments affirm them to be.

(11.) That the Validity of Human Knowledge, subjectively assured by the imperative necessity we are under of trusting our own faculties (notably memory and reason), is objectively verified (*a*) by the results of our action, which pass from our control into the outward world, and fulfil or disappoint according as action is conformed to knowledge ; (*b*) by the independent course of nature, which fulfils all predictions based on correct calculation from true data.

(12.) Lastly, that Philosophic Scepticism has no valid foundation, but that if the phenomena or facts of the universe and human nature afford adequate evidence of a First Cause, there is nothing in the nature of knowledge to make us suspect this evidence."

Prof. A. Herzen writes from Florence :—

"I have already for some time been engaged in observations such as Mr. C. Evans (MIND XIII., p. 147) wishes to be made on arms and legs 'gone to sleep'. That some differentiation exists between the sense of touch and the thermal sense is, at present, owing to pathological observations, ascertained ; the two senses do not necessarily perish together, the one sometimes surviving the other ; but a very strange fact, which I am at present submitting to more rigorous experimental control, is the following. If I purposely put one of my arms into the most favourable position for its 'going to sleep,' and from time to time test its sensibility, I find that it loses almost *simultaneously* the faculty of feeling *tactile* impressions and impressions of *cold*, whilst it *continues* for a long time to feel the *heat* communicated by the contact of a warm body. This is in direct contradiction with Mr. Evans's statement that the foot which is asleep, although insensible to touch, is still sensible to cold. In due time I will inform you of the result of my experiments."

Mr. Grant Allen sends the following :—

" Bastian asserted, and Mr. Gladstone has given currency to the assertion, that the Burmese are generally unable to discriminate between blue and green. In order to test the truth of this statement, I obtained two pieces of blue and green paper, as nearly as possible alike in intensity of shade, texture, and other particulars, and only differing in colour properly so-called. These I enclosed in a letter to Mr. H. L. St. Barbe, British Resident at Mandalay, requesting him kindly to cut up the paper into small squares, and then ask several Burmese to match the pieces. Unfortunately, the answer did not arrive in time for inclusion in my lately-published work *The Colour-Sense ;* but I give the particulars here as being of some general interest. Mr. St. Barbe says—

' I have tested casual strangers belonging to the following distinct races : Burmese, Shans, Chinese, Maingthas, Kachyens.

' I conducted the experiment in the way you prescribed and examined at least three of each nationality separately, and without a chance of communicating with their companions. The results were as follows :—

' All the "patients" were able to discriminate at once and without difficulty or hesitation between the two slips of coloured paper you enclosed, and to match detached pieces promptly and accurately. The Burmese and Shans have special names for the exact shade. They divide each prime colour into dark, medium, and light, and assigned the slips to the third division. The Chinese and Maingthas recognise (hereabouts) only two shades to a colour, while the Kachyens are altogether vague in their nomenclature. They easily distinguished between the two, but in many cases called the green "brown," and the blue "green". I am convinced that this arises, as you surmise, from a defect of language, not of vision.'

" After mentioning the fact that he had seen the same assertion in the *Spectator*, but had attached no importance to it, Mr. St. Barbe continues : ' The error may have sprung from the fact that, though the Burmese invariably call grass and vegetation green, they occasionally term the sky of the same colour, especially in their poetry '.

" I think we may conclude, therefore, that here, as in so many cases, the supposed deficiency of vision is really due to insufficient vocabulary."

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. XIII. No. 1. J. Hutchison Stirling—' Schopenhauer in relation to Kant '. H. Grimm—' On Raphael and Michael Angelo ' (tr.). W. James—' The Spatial *Quale* '. ' A Letter on the Philosophy of Thomas Aquinas ' (tr. by Thomas Davidson). G. B. Halsted—' Algorithmic Division in Logic '.

REVUE PHILOSOPHIQUE.—IVme Année, No. 1. P. Janet—' La perception visuelle de la distance '. A. Espinas—' La philosophie expérimentale en Italie : I. R. Ardigò '. C. S. Peirce—' La logique de la science '. Notes et Documents—' Le déterminisme mécanique et la liberté ' par M. Boussinesq. Analyses et Comptes-rendus. Rev. des Périod. Correspondance—*Les Analyses psychologiques :* MM. Horwicz et Th. Reinach. Nécrologie—G. H. Lewes. No. 2. P. Tannery—' La théorie de la connaissance mathématique. A. Espinas—' La philosophie expérimentale en Italie ' (fin). A. Penjon—' La métaphysique phénoméniste en Angleterre ' (fin). Analyses et Comptes-rendus. Rev. des Périod. No. 3. J. S. Mill—' Fragments inédits sur le socialisme ' (1.). E. Naville—' La physique et la morale '. A. Dastre—' Le problème physiologique de la Vie ' (suite). Guyau—' Herbert Spencer et l' Hérédité morale '. Analyses et Comptes-rendus. Rev. des Périod.

LA CRITIQUE PHILOSOPHIQUE.—VIIme Année, Nos. 46-52; VIIIme Année, Nos. 1-5. F. Pillon—'M. Wallace et le Darwinisme' (52). L. Dauriac—'De la méthode subjective selon Auguste Comte et M. Pierre Lafitte'(5). Bibliographie—Spencer, *Principes de Sociologie;* Penjon, *Étude sur Berkeley* (4). (These numbers are almost wholly taken up with subjects political or literary: the full title of the journal is *La Critique philosophique, politique, scientifique, littéraire.*)

LA FILOSOFIA DELLE SCUOLE ITALIANE.—Vol. XVIII. Disp. 1. T. Mamiani—'Della crescente necessità delle sintesi abbreviative.' G. Barzellotti—'La critica della conoscenza et la metafisica dopo il Kant'. F. Bonatelli—'Truccioli di filosofia, ossia Girolamo Clario'. G. Allievo—'La personalità umana' (I.) Bibliografia, &c. Disp. 2. Luigi Ferri—'L' idea (analisi de' suoi caratteri)'. G. Danielli—'Della fisiopsicologia del prof. Herzen'. R. Bobba—'La dottrina della libertà secondo Spencer in rapporto colla morale'. F. Ragnisco—'Le cause finali in Platone e Aristotele'. G. Allievo—'La personalità umana' (II.) Bibliografia, &c. Vol. XIX. Disp. 1. T. Mamiani—'Al prof. Luigi Ferri, intorno al suo dettato *L'Idea*'. R. Bobba—'La dottrina della libertà secondo Spencer in rapporto colla morale'. F. Ramorino—'Platone filosofo, artista e scrittore'. T. Mamiani—'Filosofia della realità'. V. di Giovanni—'Sopra una sentenza di Giordano Bruno'. Bibliografia, &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &C.—Bd. LXIV., Heft I. H. Sommer—'Die Lehre des Spinoza und der Materialismus' (I.). J. B. Weiss—'Untersuchungen über F. Schleiermacher's Dialektik' (II.). E. Dreher—'Zum Verständniss der Sinneswahrnehmungen' (V.). Recensionen (J. Grote, *Moral Ideals;* Flint, *Theism;* Hodgson, *Philosophy of Reflection*, &c.). Bibliographie.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. III., Heft 1. C. Göring—'Zur philosophischen Methode'. K. Ch. Planck—'Sinnesanschauung und logisches Causalgesetz: Eine Entgegnung auf die neuesten Ausführungen von E. Zeller' (I.). L. Tobler—'Ueber die Anwendung des Begriffes von Gesetzen auf die Sprache'. R. Avenarius—'In Sachen der wissenschaftlichen Philosophie' (III.). Recensionen. Selbstanzeigen. Phil. Zeitschriften. Bibliog. Mittheilungen.

PHILOSOPHISCHE MONATSHEFTE.—XIV. Bd. Hefte 8, 9. R. Eucke—'Untersuchungen zur Gesch. der älteren deutschen Philosophie (II.): Nicolaus von Cues'. J. Witte—'Die Lehre vom subjectiven Antheile des Geistes an allem Erkennen und der Apriorismus'. A. Scheuten—'Aphoristische Gedanken über Raum u. Zeit'. Recensionen und Anzeigen (Sully, *Pessimism*, &c.). Literaturbericht. Bibliographie, &c. Heft 10. M. J. Monrad—'Hamlet—und kein Ende'. Recensionen u. Anzeigen (Carrière, *Die sittliche Weltordnung;* Dittmar, *Vorlesungen über Psychiatrie*, &c.). C. Ueberhorst—'Zur Abwehr'. J. H. Witte—'Replik'. Bibliographie, &c.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—THE ORIGIN OF THE SENSE OF SYMMETRY.

THERE are few peculiarities which seem at first sight more eminently characteristic of man, as distinguished from the lower animals, than his employment of symmetrical patterns for ornamental purposes. Whether we look at the rose windows of a Gothic cathedral or at the graceful tracery of a New Zealand canoe, at the beautiful designs of European decorative artists or at the regular tattooing of a Caroline Islander, we are alike struck by the special nature of the geometrical figures employed for the self-same object in the most diverse cases. And when we go back in time to the earliest prehistoric monuments of our race, we find the like regularity in the huge circles of Stonehenge or Abury, in the polished flints and arrowheads of the neolithic remains, nay, even to some rude extent in the roughly-chipped stone implements of the very first human inhabitants of the earth. Yet this last and qualified assertion shows us that the love for symmetry among mankind is something that has grown and developed during the whole of historical and prehistoric time: and we are consequently led to inquire what is the origin of the taste which we see thus displayed in every existing race of men. Obviously, we cannot find an answer to this question by examining such finished products of art as the Gothic cathedral or the New Zealand canoe. If we wish to trace the developed taste to its origin we must begin by asking the simple question, why did man first take to the two primordial elements of symmetry, the straight line, and the circle or other regular curves?

So far as we know, no monkey ever draws a straight line, or ever makes a definite circular mark. But even the lowest men practise these primitive arts as it were instinctively. The monkey may crack a coco-nut or an egg-shell; he may perhaps even use it as a scoop to hold water for a single occasion; but he never cuts it into a regular cup with an even section. A savage, on the other hand, makes a calabash or an ostrich-egg into a definite and graceful vessel. The monkey uses a stone to break hard nutshells, but he never fashions it into a celt or a knife. A savage, on the other hand, makes his arrowheads and his club bilaterally symmetrical with an amount of care which puts to the blush his civilised competitors. So thoroughly distinctive of mankind is this love for regularity, that whenever we find an object artificially shaped into a symmetrical form, we at once regard it as a human product; we conclude that its maker was some animal sufficiently resembling ourselves to deserve the name of man. We have thus, in fact, informally recognised the taste for symmetry as a real differentia of humanity.

Yet if we look a little further into the question, we shall see that this apparent distinction between man and the lower animals, like all the other artificial distinctions whereby man seeks to hide the community of origin between himself and the brutes, fades away to a great extent upon closer consideration. There is no object to which symmetrical figures are more frequently applied than the house or hut. Not to take into account our own palaces, churches, and mansions, the houses of most modern savages are strikingly noticeable for their pretty circular or oval shape. So, too, the Swiss lake dwellings were regularly laid out in squares and rings: while the ground-plan of most other pre-historic villages, wherever recoverable, shows them to have contained domestic architecture of a strictly symmetrical character. The woodcuts in Dr. Schweinfurth's *Heart of Africa* and in Sir Charles Lyell's *Antiquity of Man* will best illustrate the nature of the patterns ordinarily employed. But when we examine the homes of those among the lower animals which construct themselves definite nests, we find that they are almost always marked by exactly similar symmetrical plans. The circle, the regular curves, the straight line, and the principle of bilaterality all enter into them quite as prominently as into the construction of human villages. Hence we are led to guess that a general tendency toward the production of symmetrical art-products may perhaps exist throughout the whole animal world. If we examine a few cases in detail, we may possibly be able to estimate the worth of this conjecture, as well as to free ourselves from the conventional entanglements which beset the half-understood distinctions of instinctive and rational action.

The very lowest type of animal architecture can hardly be distinguished from mere organic growth. The coverings of echinoderms, such as the sea-urchin, are just as much results of simple unconscious development as are the bones of vertebrates. But in the mollusca we get a sort of intermediate stage; for though the shell is deposited by the mantle in a purely organic manner, yet the animal can slightly alter the direction of the whorls, so as to avoid an obstacle which had accidentally adhered to their surface. Thus the garden snail occasionally produces open spiral shells with disconnected whorls, resembling a corkscrew; while normally discoid species sometimes assume a turbinate form. These instances, however, scarcely differ from those of common monstrosities, to which indeed they are often clearly referable. But the cocoons of insects give us a nearer approach to externally-formed dwellings, and lead us naturally on to more advanced cases. In the web of the geometrical spider we see an excellent specimen of symmetrical workmanship of a very interesting sort: while in the hexagonal cells of honey-bees, in the curiously shaped nests of many wasps, and in the regularly planned hillocks of the termites, we find that the organised habits of the various species have resulted in the production of perfectly symmetrical figures. Numerous other instances amongst the articulata, such as the trap-doors of certain spiders and the neatly constructed nests and galleries of many ants, will at once occur to the biological reader: but further illustration would merely be tedious without adding weight to the analogy here suggested.

When we turn to the vertebrates, we find an abundance of similar constructive instincts. Besides the nests of ordinary birds, which are almost always approximately circular, there are certain special cases like those of the weaver-birds, in which the nest assumes a much greater definiteness and regularity of shape. The bower-birds, in addition to their own private nests, build common meeting-places or "assembly rooms" as they have been well called, from which they derive their English name. Amongst mammals, the beaver constructs for himself circular houses, together with straight dams, curved at the point where the stream runs strongest. The harvest mouse weaves a pretty little globular nest. Even the all but sightless mole excavates a series of galleries whose ground-plan displays a couple of regular circles, surrounding a spherical chamber, with definitely arranged intercommunications. In fact, we see as a rule that wherever animals build themselves any but the rudest shelters or burrows, their architecture tends to assume a symmetrical shape.

It is of course quite beside the question to refer these habits to instinct, that blind and empty catchword of an extinct school of thought. No doubt the bee, the weaver-bird, and the beaver all work at the present time by inherited instinctive tendencies. But those tendencies are the result of ancestral habit; and the habit must have had a beginning at some time or other. The main differences between these cases and that of man resolve themselves on close inspection into two very simple points of detail: first, while in the beaver the building habit has become so far ingrained in the nervous system that it exhibits itself spontaneously and without the aid of teaching, in man it has never apparently become so ingrained as to be strictly instinctive: and secondly, while with the beaver the same kind of house is produced from generation to generation, with man circumstances are always producing modifications of many sorts, far more marked, however, amongst the civilised than amongst the savage races. Even these differences ultimately depend upon a single further fundamental difference, that while the relatively poor and fixed nervous centres of the lower animals have become stereotyped in particular directions, the relatively rich and modifiable nervous centres of man admit of much greater latitude in their constant adaptation to the changing phases of their environment.

Accordingly, we may conclude that primitive man shared with all other animals an inherent tendency towards the construction of regular figures. Whether he at first exerted his native bent in the erection of permanent buildings is indeed very doubtful, because the earliest men with whose remains we are acquainted appear to have been dwellers in caves and rock shelters. Yet we should recollect that such among these remains as have yet been explored are chiefly confined to northern latitudes; and as man in all probability was first evolved under a tropical climate, it is quite possible that in his southern home he may have very early built for himself such temporary huts as we still find in almost all warm countries. On the other hand, the existence at the present day of tribes like the Fuegians who have practically no shelter worthy of the name of huts, would seem to render it doubtful whether the art of building in its rudest shape was really a primitive acquisition of humanity. Indeed, I attach no special importance to the hut in itself, further than as illustrating the general continuity of habit between man and the lower animals. We ought not, however, to forget that our nearest relatives, the anthropoid apes, construct themselves rude shelters.

A far more important question is that which relates to the origin of this common tendency towards symmetry in workmanship which we find running through the whole of human and animal architecture alike. And here I think we must trace its existence to the general nature of organic movement. Our muscles and limbs all act in a rhythmical manner, and the products of their activity have a certain general tendency to be symmetrical in accordance with the natural rhythm. Thus, to begin with obvious instances, in walking, the feet leave prints at certain regular distances: and if we carry a stick, its mark will similarly occur at measured intervals. So, too, if we make a sweep with a cane on the sand, the figure described is an arc of a circle. Again, if we sharpen a stake with a knife, we naturally make its tapering part at or about the middle. Or, if we pile up a snow house, after the fashion of Esquimaux and of Canadian schoolboys, standing in the middle as we work, we shall naturally produce a more or less correct circle. The whole tendency of all bodily acts, and therefore of all constructive acts, is towards a certain kind of rough symmetry. Just as the mouse produces a rude circular hole in a wainscot by biting all round alike, just as a bird produces a fairly circular nest by weaving in pieces all round alike, so a man produces a decently circular hut by building up mud all round alike.

The first among such buildings, human or animal, will naturally possess only a very incomplete and partial symmetry. But as the habit becomes strengthened, the symmetry will grow more and more complete, though by the action of different causes in the two instances. Amongst animals, as the process of building became gradually instinctive, greater regularity would necessarily appear; because the most symmetrical form is the type of all the other forms, with the individual divergences omitted. So, since the instinct in each individual represents the inherited habits of countless prior individuals, it must necessarily happen that instinctive actions will grow more and more typical, will conform more and more to the central plan with less and less of accidental variation. That this is really the genesis of symmetrical building amongst animals we may infer even *à posteriori;* because we find every stage from the rudest to the most finished structures, actually in existence. Thus amongst bees, there are some in which the cell-making instinct has only gone a very little way: while there are others, like the honey-bee, in which it produces the most perfect hexagonal shapes. Again, amongst birds, there are some, like the night-jars whose nests are a mere rough collection of twigs and stubble; others, like the humming-birds, whose æsthetic instincts lead them to build very round nests, completely lined with the softest materials, and decorated outside with interwoven feathers. With man, on the other hand, increase of symmetry is gained not by habit becoming instinctive, but by the intervention of the intellect in a manner hereafter to be examined.

The mere rhythmical play of limbs and muscles thus gives us what we may call the active factor in the production of a feeling for symmetry. The passive factor is given us by the general existence of symmetry in nature, amongst organic products at least.

Every leaf (roughly speaking) consists of a bilaterally symmetrical mass of green, sometimes simple, sometimes composed of many corresponding leaflets. Several of these, as in the horse-chestnut, the palma christi, and the acacias, are extremely noticeable for their regularity. The fronds of ferns show us a still higher degree of symmetry and correspondence in parts. The waving branches of palms, the circular arrangement of the foliage in aloes, yuccas, and numerous other liliaceous plants, especially of the tropics, and the alternate or whorled disposition of the leaves upon the axis in all plants, are facts of a similar sort. More noteworthy in the eyes of primitive man, however, are the bright-coloured flowers, all of which exhibit symmetry of the most varied types. Some, like the dog-rose and daisy head, are circular or radial; others, like snapdragon and salvia, are bilateral; yet others, like the iris and the snow-drop, display curious variations on the ordinary form. Not less important are the shapes of fruits; spherical, like the orange and cherry; bilateral, like the pear and peach; beaded, like the raspberry and mulberry. These again are often made up of symmetrical parts, as in the septa of the orange and the pomegranate; or are marked internally with symmetrical or radial patterns, as in the pine-apple and star-apple. Finally, the arrangement of the fruits upon the axis is often itself symmetrical, as in the head of wheat or barley, and in the "clock" of the dandelion or the thistle.

Animal forms would impress the same expectation of symmetry yet more deeply on the primitive mind. The radial distribution of parts in the star-fish and sea-urchin; the twin valves of half the molluscs, and the discoid or turbinate shells of the other half; the corresponding wings of the butterfly or the beetle; the whole form of the mammal or the bird—all these display some variety of symmetry in a most marked and unmistakable manner. Still more do certain special parts of animal organisms, which are particularly employed by primitive man in his early arts. The twin horns of deer and antelopes, the two blades of a feather, the tusks of elephants and wild boars, the very bones and skull used as implements or vessels, are strikingly symmetrical both in their wholes and their component pieces. Above all, however, we must place the influence of the human figure and features themselves, the bilateral symmetry of legs and arms, of eyes and ears, of nose, mouth, and cheeks, which strikes every child and every savage so forcibly, and which imprints itself upon all the earliest attempts at imitative art, from the picture-writing of the American Indian to the rude human shapes drawn in chalk by English boys upon wall or black-board. In every one of them we see the same wooden arrangement of a round head fixed upon a straight body, with two equal arms and legs, diverging at exactly the same angle on either side.

Notice, once more, that the symmetrical objects in nature are exactly those with which primitive man has most to interest himself. The fruits and berries which he searches for food in the tropical forest; the shell-fish and crustaceans which eke out his subsistence on the Baltic shore; the fish which he catches in his Swiss lakes; the stags, the antelopes, and the birds, which he brings down with his arrow, his hatchet, or his boomerang; the feathers, flowers, leaf-mats, cowries, seeds, and crystals with which he adorns himself—are among the most markedly symmetrical products of the organic world. The reindeer and the mammoth, whose horns and tusks form his earliest material for incipient works of art; the untilled cereals whose heads he gathers for winter use; the beasts whose skins he employs for decoration; the very fossil echini and rhynchonellæ which he drills to make his primæval necklets—all impress the same idea upon his developing mind. And the limbs or features of his chosen squaw, not yet a mere domestic drudge like the Australian jin, but somewhat of a helpmate for the lord of the forest, aid in fixing the notion of symmetry still more deeply in his brain as a natural element of beauty. For we must never forget that æsthetic feelings, from first to last, as Mr. Herbert Spencer has pointed out, are closely interwoven with that most powerful of impulses which, purified and intensified into human love, forms finally the source of inspiration for half our highest poetry and half our noblest art.

One other predisposing cause of a passive sort we must notice before we pass on to the actual evolution of the taste for symmetry. Many objects used as vessels or implements by primitive man are not only themselves symmetrical but must almost necessarily undergo symmetrical alterations to make them useful for human purposes. Thus a coco-nut, a calabash, or an ostrich-egg is originally oval in shape. The monkey which cracks and eats the kernel or the yolk destroys the symmetry of the object. But if man wishes to make himself a cup or a water-bottle, he must cut the shell instead of breaking it: and the cutting will almost inevitably result in a symmetrical vessel. So far as it fails to be symmetrical, so much the less of its content is utilised; and therefore there will always be a tendency for such vessels to grow more and more accurate in their sections. So, too, with bamboos or sticks of wood. Themselves circular in segment and straight in longitude, they can only be used in more or less symmetrical arrangements. Posts for huts made from these materials must stand perpendicularly. Chairs, stools, or benches will topple over unless their supports are evenly placed and straight in line. Single joints of large bamboos, used as vessels for water or provisions, must be cut off just below each joint. Similarly with basket work and many other primitive arts. The naturally symmetrical material must be symmetrically employed for domestic purposes or it fails to attain the object of the maker.

And now that we have considered these two original elements in the production of a habit or taste in mankind for making symmetrical objects—the active element, due to the rhythm and recurrence of organic movements, and the passive element, due to the constant observation of symmetry in external nature—we may go back to consider the steps by which primæval man first applied the notions thus evolved to the production of weapons or implements.

In the first place we may notice that the very idea of an implement is closely bound up with that of artificial symmetry. An evolving anthropoid, as Sir John Lubbock has pointed out, might accidentally splinter a flint with which he was cracking a nut; and he would then naturally make use of the sharp fragments as knives.[1] But such very rude implements as these would scarcely deserve the name. The first forward step would be taken when the anthropoid began consciously to aim at regularity in his flint fragments. That is precisely the stage at which we begin to call him a man. How very rough is the regularity at first attained, all who have examined palæolithic stone implements know well enough. Yet even in these very shapeless masses of chipped flint, we find a clear recognition of symmetry as the aim and final intention of the artist, however imperfectly realised. The hatchets are broken into a rude approximate regularity, both laterally and longitudinally, so that two transverse sections will each exhibit a certain approach to symmetry. Indeed, if we consider the slight means at the disposal of the hatchet-maker, the wonder is rather that he should have taken so much pains to ensure regularity than that the regularity actually attained should be so imperfect.

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[1] If, however, the Abbé Bourgeois is right in regarding his tertiary flints as human products, then the earliest stone implements were cracked by means of fire, and only retrimmed by the hand.

The arrowhead demands even more attention to symmetry than the hatchet. It is true, barbed arrowheads were probably by no means the earliest form, the very first lances or arrows being tipped, apparently, with mere sharp points of flint. But as soon as the principle of the barb was discovered, we get a great advance in the direction of a regularly-shaped bilateral weapon. Arrowheads of this type, especially in bone, are common during the palæolithic age, and often show considerable pains and workmanship.

The other art-products of the drift and cave period also display no little feeling for symmetry. This is especially noticeable in the horn or bone implements, such as knife-handles, fish-hooks, and needles; and in the whistles formed from small bones. The taste is more passively displayed in the drilled fossil shells and pebbles, apparently employed for personal decoration; and we can hardly doubt, though we have no positive evidence, that flowers and feathers were also used during the same period for like æsthetic purposes.

But just in proportion as man went on framing implements and vessels for himself in symmetrical forms, the notion of symmetry as a proof and test of human workmanship would grow stronger and more developed from day to day. The art of grinding stone implements necessarily brings about a great improvement in this respect. By the neolithic age we find the conception so deeply ingrained that all human products have become scrupulously even and regular, and a high degree of artistic finish has been attained. We can see clearly that symmetry is now prized for its own sake, and that pains are taken to make every weapon, every tool, and every vessel not only effective but also workmanlike and thorough. And we must remember that from age to age those tribes which acquired the greatest skill in the manufacture of weapons would gain an advantage over their neighbours, not only directly by the superiority of their arms, but also indirectly by the increased power of muscular co-ordination which would be developed in the manufacturing process.

We have necessarily very little evidence as to the origin of most other arts, whose products are less imperishable than stone hatchets and arrowheads. But it is clear that they must have greatly increased the general habit of producing symmetrical objects and the general taste for the symmetry so produced. Thus the arts of wattling and weaving, essentially identical, yield alternate patterns. If pigments be used in staining the material, as with the baskets of the American Indians and the rude cloth of some South Sea Islanders, the result will be a regular alternation of colours which often produces a very pretty effect. In like manner, the art of pottery (developed as early as the age of the Danish shell-mounds) helps on the taste for symmetry; because all early pottery is modelled upon natural shapes, such as gourds, calabashes, nutshells, eggs, and perhaps skulls. The native markings upon these objects, when they possess any, will of course be symmetrical, and will accordingly transfer their symmetry to the artificial vessels. Other modes of decoration spring up in analogous manners. For example, it has been shown that a very common string-course pattern found on rude pottery was originally due to the marks of a twisted rope, wound round the jar or bowl: and when the rope was no longer used, the marks were roughly imitated by splashes on the soft clay made with a knife. Here we see the conscious desire for ornamentation begotten by its common occurrence through adventitious circumstances.

The art of navigation must also have contributed largely to form the taste for symmetry. The canoe must be hollowed out of a straight log, and its sides must be evenly balanced so as to swim true in the water. The paddle must have a straight handle and an even flattened blade to guide the canoe aright. In this case and in that of weapons, we see in part the origin of the preference for straight lines over irregular curves. For in the same way the arrow must be perfectly straight to hit the mark; and the spear or lance must be perfectly straight to take a steady aim. Even the club and the stick used in walking will perform their work much the better for being perfectly straight. All these cases may go side by side with the props or pillars used in building the hut, the wattles employed for its walls, and the beams or cross pieces which make the conical roof. The practical value of the straight line must soon ensure it a recognised place in all primitive arts.

A further step in the same direction is that of conscious numerical equality. Thus, beads of different shapes and colours are not strung by savages, nor were probably by primitive man, in irregular order, but in some definite numerical proportion, say in the recurrent form B, A, B; or C, B, A, B, C; or C, B, B, A, B, B, C. So, too, feathers or cowries are arranged in regular patterns, according to size and length; or are alternated in colour; or are placed together in diamonds or quincunx order. Similarly with the posts of a hut, which are placed at definite intervals, and perhaps with alternating sizes. This kind of symmetry is naturally suggested by the contemplation of organic bodies, and in some instances is actually made almost necessary by the proportions of the material.

In architecture, the cromlech offers a good example of such rudimentary symmetry. The stone circles and avenues show us a more developed form of the same principle. The posts of the old Achaian hut thus grew slowly into the regular columns of the Doric or Ionic temple; and the fixed proportions which these buildings maintained throughout their purest age probably represent on an enlarged scale the original dimensions of the herdsman's cottage. Architecture, indeed, is preeminently the symmetrical art, in every stage of its development, and it is partly for this reason that I have laid so much stress upon the building instinct of the lower animals and its relation to the habit of building in early man.

As soon as the taste for symmetry has become fixed and definite in these various ways, it will follow that symmetrical ornamentation will be consciously applied to those objects in which decoration is a desired effect. Thus the club of the chief comes to be delicately sculptured with dainty tracery, and the royal canoe to be ornamented with regular and intricate patterns. In this manner the feeling for fine workmanship grows stronger and stronger, till at last we habitually think of detail in symmetrical patterns, even in natural products, through the analogy of human handicraft. Thus we speak of the delicate sculpture on a shell, the exquisite tracery on an ammonite, the minute carving of an echinus, the intricate lacework in a microscopic diatom. The idea of a maker or workman, definitely or indefinitely present to our minds, is always bound up with our admiration for these beautiful objects: and when we wish to sum up our pleasure in beholding them, we call them gems or masterpieces of nature's handiwork. It is the notion of human skill, actual or ideal, which gives us our standard for judging of minute symmetrical patterns. In human works, as for instance a Hindoo chased vase or a piece of Chinese ivory carving, the more delicate the detail, the greater we know was the labour and the skill expended, and hence the greater our admiration. Accordingly, we transfer the same feeling to nature, and think of the results attained by organisation or crystallisation as though they had been attained by deliberate design.

Another point deserving notice is the part played by repetition in ornamentation. Almost every pattern consists of certain separate parts repeated at regular intervals. Take as an excellent example the plaster "roses" with which builders disfigure the centres of our ceilings. Now, in most cases, this repetition produces an excellent decorative effect, and indeed it lies at the very root of almost all decorative art. Yet at the beginning it naturally results from the mere paucity of the materials at the command of the decorator. Thus, in the Polynesian Islands, cloth is stamped and dyed with really pretty patterns in the following very simple manner. Two stamps are prepared, having square dies, on one of which say, a cross is cut, and on the other a diamond. These stamps are then stained with dark red dye and applied to the cloth alternately; and the result is a very artistic chequer pattern of crosses and diamonds. In the same way, a wedge-shaped die, applied successively round a fixed centre, will form a circular pattern; and a single application at each corner of a handkerchief will complete the decoration very prettily. In fact, repetition of a single figure (which need not itself be symmetrical) is at once one of the simplest and most effective devices of ornamental art.

The longer man continues to build and to manufacture, the stronger do these habits grow of symmetry in useful objects, and of decoration for mere ornament's sake. Every human product comes to be definitely shaped, until we at last forget how universal is the practice, even on account of its very universality. But we need only look around our own rooms to notice the straight lines and rectangular figures of floor, walls, ceiling, doors, and windows; the regular breaking up of the last into panes and panels; the square, oblong, round, or oval tables; the shape of the chairs, sofas and ottomans; the mantelpiece, fireplace, grate and fender; the pattern on the carpet, wall-paper and curtains; the very door-handles, bell-pulls, gas-brackets and key-hole-shields. Not an object in our modern human world which does not bear manifold marks of symmetrical design. It is worth while, in this connexion, merely to take up the poker and observe what an immense amount of workmanship is involved in the various kinds of symmetry which occur in its fluted knob, its cylindrical shaft, and its square extremity. Ages of previous æsthetic culture are presupposed in our kitchen fire-irons.

And now the question naturally arises, why is symmetry thus pleasing to the human mind? I have already hinted the answer to the question in great part, but we shall gain in clearness by once more putting the problem in this definite form. In the first place, the high position which symmetry occupies in human ideas of beauty is doubtless largely due to the developed intellectual faculties of man. There can be little hesitation in admitting, it is true, that the lower animals share this feeling to some extent, at least if Mr. Darwin be correct in attributing to sexual selection the ball-and-socket ornamentation of the argus-pheasant, the magnificent plumage of the lyre-bird, and the gracefully spiral horns of the Koodoo antelope. But the intellectual superiority of man makes him far more capable than any other animal of deriving pleasure from that order and regularity which are the central features of symmetry. The first germ of the taste must therefore be set down to the recognition of an intelligible plan as distinct from a mere chaos. There is probably no savage so low as not to perceive the superiority in this respect of a fern to a cabbage-leaf, or of a carved club to a rough and shapeless stick. And it may not be irrelevant here to note that the flora of the tropics, where we have reason to believe man was first developed, is largely distinguished from the flora of the temperate zone by its much greater symmetry of arrangement. The radial principle in the various palms, the banana, the aloe, the bromelias, the bamboos, the tree-ferns, the club-mosses, and the cactuses, is one of the first peculiarities which strikes the visitor on landing in a tropical country; and it may be realised to some extent even in the hothouses of Kew and the Jardin des Plantes. It is not, perhaps, extravagant to suppose that this symmetrical arrangement of nature on a large scale may have had some influence in quickening the primitive love for symmetry, just as I believe the great tropical fruits and flowers, and the beautiful plumes of tropical birds, had some influence in quickening the primitive love for bright colours. At any rate, we may hold it as certain that the coco-nuts, calabashes, ostrich-eggs, gourds, cowries, and bamboo stems of equatorial climates have been of great practical service in originating the use of symmetrical vessels, dwellings, and furniture amongst early man.

Next to the original pleasure of a comprehensible arrangement, we must place the inherited effect of usage. The more man grew accustomed to be surrounded by symmetrical objects, the more would he demand symmetry in all articles of human manufacture. A rough or unshapely implement he would naturally reject as inferior; while a finished and shapely one would recommend itself to him as the best and handsomest. Here, too, he would be partly determined by practical utility, which generally coincides (roughly speaking) with artistic finish. For just as we saw that the straightest arrow flies best to its mark, so does the roundest stone fit best in the sling, and the smoothest spear-head pierce most easily through the hide of wild beasts or the enemy's skull. And thus utility goes hand in hand with beauty, as the principle of evolution would teach us to expect even *à priori* that it would do.

Finally, we get the pleasure of human handicraft, a distant form of sympathy, not unmixed with admiration for skill. When the symmetry and the workmanship are merely such as we find in everyday life, we feel this pleasure only to a very slight extent. But when the skill displayed is very great, as in the marvellous lattice screens of wrought marble which adorn so many works of Indian architecture, or in the beautiful tracery of an Admiralty Islander's club, or in the rose window of an English cathedral, our feeling becomes one of distinct æsthetic pleasure, in which the elements of sympathy and admiration are very obviously recognisable. And in the case of natural productions, we read-in by analogy a similar admiration for the being or entity to whom we actually or implicitly assign their creation.

Hence it will be seen that the pleasure in symmetry is far more derivative and intellectual than the pleasure in colour or in simple musical sound, both of which are comparatively primitive and sensuous. At the same time it is a pleasure which can be shared and appreciated by many savages whom we are accustomed to place very low in the scale of humanity.

A point of some interest is connected with the old dispute as to the line of beauty. Looking at the question from a scientific and inductive stand-point, it may be said that the straight line represents *practical beauty*, and the curve *ornamental beauty*. The straight line is the best and simplest boundary, on the whole, for houses, walls, furniture, boxes, architectural details, roads, streets, canals, railways; the shortest route for the path of a ship, a wain, an army, a moving body generally; the natural limit for a book, a paper, a piece of cloth, a brick, a plank of wood, and in short for most raw material. Even in fine art, strictly so called, a straight and rectangular boundary is often convenient; and I suppose Mr. Ruskin himself would hardly demand that all pictures should cover an oval or circular canvas and have curved frames. A glance around the room will show the reader how largely and necessarily the straight line enters into both the constructive and decorative part of his surroundings. But the curved line is certainly the chosen ornamental contour. It may of course be occasionally employed for mere practical purposes, as in an arch, a bow window, a bowl, a ship-timber, or possibly a barrel: yet even in these it possesses a certain special beauty of its own. In most cases, however, it is used for decorative effect alone, and in the hands of savages it is employed with admirable results in tattooing and in ornamental work generally. Amongst ourselves, it contributes to the beauty of all architecture and of all internal decoration: and even where it has been lavished with excessive ardour, as upon furniture, gas-hangings, and the other "solicitous wrigglings" which offend against the most cultivated taste, it must be accepted as accurately reflecting the general æsthetic sensibility of average European man. The modern artistic demand for "simplicity of outline" is a reaction against the ordinary desire to obtain the greatest possible amount of ornamental curvature, in season or out of season; because the ordinary mind is pleased with external twists and twirls which give dignity and importance, at the cost, as others may think, of simple beauty and appropriateness.

The love of symmetry, once introduced, rapidly grows through the action of all the influences already enumerated, and at length induces a certain reaction. Early imitative art, as we see not only in the pictures drawn by savages, but even in the highly developed paintings and bas-reliefs of the Egyptians and Assyrians, usually assumes a symmetrical shape. The common and well-known figures of Pasht afford excellent examples which must be familiar to every reader:—a cat-faced goddess, seated bolt upright on a chair or throne, with ankles and feet set together, and either hand placed symmetrically upon its corresponding knee. Gradually, however, a spirit of discontent sets in against this formal symmetry. Some bolder artist observes that mankind in the actuality, though possessing typically bilateral bodies, do not habitually hold themselves in such stiff and abstractly human attitudes. Even in Egyptian sculpture, and much more in Egyptian painting, we get occasional variations from the traditional positions: and there is at least one group of statuary in the British Museum, as early as the IXth Dynasty, which is almost Greek in the natural pose of its two figures—a husband and wife, seated side by side as they might have sat in actual life. But it is not till the rise of Hellenic sculpture that we find symmetry carefully eschewed in imitative works. The fundamental distinction of imitative and decorative art begins with the Greeks. Before them, almost all painting and sculpture was half ornamental, half representative in character: it was they who first drew the definite line between the two, and thoroughly emancipated imitative art from symmetrical arrangements. Nevertheless, we must not forget that an Egyptian would probably have preferred his own regular and carefully measured figures to the unsymmetrical and free pose of a Hellenic Apollo: just as the negro of our own day prefers a rude full-faced portrait to a profile, and asks with critical displeasure why the artist has given him only one eye.

Before quitting the subject, I cannot avoid briefly noticing the special form which this reaction against symmetry has taken amongst the Japanese. No other nation, outside the regular line of Helleno-Italian and Western European civilisation, has ever advanced so far in imitative art as the people of Japan. They have studied nature at first hand, and have succeeded in completely throwing aside the primitive symmetrical treatment of the human and animal form. But at the same time, they have gone much further than all other nations in their systematic rejection of symmetry even in comparatively decorative art. Whether this habit or tendency is of artistic merit or otherwise, I shall not attempt to determine, since it is well to keep critical questions quite apart from such a positive discussion as that upon which we are now engaged. But it is at least certain that the Japanese do, as a matter of fact, carefully avoid symmetrical arrangement of figures, patterns, or designs, even on fans, vases, fictile ware, and other ornamental objects. It is this deliberate and conscious attempt at asymmetry which gives to Japanese workmanship much of its distinctive quaintness. Apparently, the Japanese artists first observed that absolute symmetry was rarely found in concrete nature, though it is almost always found in the abstract form;[1] and hence they began a revolution somewhat analogous to that which produced the later Hellenic art. But when the revolution was once set up, they probably grew to look upon asymmetry as a differentiating peculiarity of Japanese civilised art, when compared with the rude workmanship of other or earlier races. Moreover, this peculiarity fell in naturally with a generic tendency of the Turanian mind, which has always sought after the *odd* as a separate element of æsthetic feeling. In a higher way, too, it encouraged artistic freedom; and this is the special quality which recommends Japanese art to western connoisseurs. Of course, it must not be supposed that the Japanese utterly and entirely abjure the employment of symmetry: their plates and cups are on the whole just as circular as our own: but they do reject the symmetrical arrangement of decorative designs in many cases where European art has almost invariably employed it. This subject, however, though interesting in itself, would lead us too far afield from the simple consideration of symmetry.

In conclusion, I would only add that the treatment of so large a theme as that of the causes which produced our human love for symmetry can be but very roughly sketched in a single short paper. It must suffice to suggest briefly the most important steps, leaving the minor details to be filled in from the knowledge of the reader.

GRANT ALLEN.

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[1] This assertion may seem at first sight opposed to what has been previously said with regard to the symmetry of natural forms; but the contradiction is only apparent. Every leaf upon a tree is in itself symmetrical; but the tree as a whole, and each leaf as seen in perspective, is unsymmetrical. Early man represents the object conventionally as he conceives it, in its abstract regularity: the advanced artist represents it accurately as he sees it, in its accidental variety and freedom.

II.—THE SENTIMENT OF RATIONALITY.

I.

WHAT is the task which philosophers set themselves to perform? And why do they philosophise at all? Almost every one will immediately reply: They desire to attain a conception of the frame of things which shall on the whole be more rational than the rather fragmentary and chaotic one which everyone by gift of nature carries about with him under his hat. But suppose this rational conception attained by the philosopher, how is he to recognise it for what it is, and not let it slip through ignorance? The only answer can be that he will recognise its rationality as he recognises everything else, by certain subjective marks with which it affects him. When he gets the marks he may know that he has got the rationality.

What then are the marks? A strong feeling of ease, peace, rest, is one of them. The transition from a state of puzzle and perplexity to rational comprehension is full of lively relief and pleasure.

But this relief seems to be a negative rather than a positive character. Shall we then say that the feeling of rationality is constituted merely by the absence of any feeling of irrationality? I think there are very good grounds for upholding such a view. All feeling whatever, in the light of certain recent psychological speculations, seems to depend for its physical condition not on simple discharge of nerve-currents, but on their discharge under arrest, impediment or resistance. Just as we feel no particular pleasure when we breathe freely, but a very intense feeling of distress when the respiratory motions are prevented; so any unobstructed tendency to action discharges itself without the production of much cogitative accompaniment, and any perfectly fluent course of thought awakens but little feeling. But when the movement is inhibited or when the thought meets with difficulties, we experience a distress which yields to an opposite feeling of pleasure as fast as the obstacle is overcome. It is only when the distress is upon us that we can be said to strive, to crave, or to aspire. When enjoying plenary freedom to energise either in the way of motion or of thought, we are in a sort of anæsthetic state in which we might say with Walt Whitman, if we cared to say anything about ourselves at such times, "I am sufficient as I am". This feeling of the sufficiency of the present moment, of its absoluteness—this absence of all need to explain it, account for it or justify it—is what I call the

Sentiment of Rationality. As soon, in short, as we are enabled from any cause whatever to think of a thing with perfect fluency, that thing seems to us rational.

Why we should constantly gravitate towards the attainment of such fluency cannot here be said. As this is not an ethical but a psychological essay, it is quite sufficient for our purposes to lay it down as an empirical fact that we strive to formulate rationally a tangled mass of fact by a propensity as natural and invincible as that which makes us exchange a hard high stool for an arm-chair or prefer travelling by railroad to riding in a springless cart.

Whatever modes of conceiving the cosmos facilitate this fluency of our thought, produce the sentiment of rationality. Conceived in such modes Being vouches for itself and needs no further philosophic formulation. But so long as mutually obstructive elements are involved in the conception, the pent-up irritated mind recoiling on its present consciousness will criticise it, worry over it, and never cease in its attempts to discover some new mode of formulation which may give it escape from the irrationality of its actual ideas.

Now mental ease and freedom may be obtained in various ways. Nothing is more familiar than the way in which mere custom makes us at home with ideas or circumstances which, when new, filled the mind with curiosity and the need of explanation. There is no more common sight than that of men's mental worry about things incongruous with personal desire, and their thoughtless incurious acceptance of whatever happens to harmonise with their subjective ends. The existence of evil forms a "mystery"—a "problem": there is no "problem of happiness". But, on the other hand, purely theoretic processes may produce the same mental peace which custom and congruity with our native impulses in other cases give; and we have forthwith to discover how it is that so many processes can produce the same result, and how Philosophy, by emulating or using the means of all, may attain to a conception of the world which shall be rational in the maximum degree, or be warranted in the most composite manner against the inroads of mental unrest or discontent.

II.

It will be best to take up first the theoretic way. The facts of the world in their sensible diversity are always before us, but the philosophic need craves that they should be conceived in such a way as to satisfy the sentiment of rationality. The philosophic quest then is the quest of a conception. What now is a *conception?* It is a *teleological instrument.* It is a partial aspect of a thing which *for our purpose* we regard as its essential aspect, as the representative of the entire thing. In comparison with this aspect, whatever other properties and qualities the thing may have, are unimportant accidents which we may without blame ignore. But the essence, the ground of conception, varies with the end we have in view. A substance like oil has as many different essences as it has uses to different individuals. One man conceives it as a combustible, another as a lubricator, another as a food; the chemist thinks of it as a hydro-carbon; the furniture-maker as a darkener of wood; the speculator as a commodity whose market price to-day is this and to-morrow that. The soap-boiler, the physicist, the clothes-scourer severally ascribe to it other essences in relation to their needs. Ueberweg's doctrine[1] that the essential quality of a thing is the quality of most *worth,* is strictly true; but Ueberweg has failed to note that the worth is wholly relative to the temporary interests of the conceiver. And, even, when his interest is distinctly defined in his own mind, the discrimination of the quality in the object which has the closest connexion with it, is a thing which no rules can teach. The only *à priori* advice that can be given to a man embarking on life with a certain purpose is the somewhat barren counsel: Be sure that in the circumstances that meet you, you attend to the *right* ones for your purpose. To pick out the right ones is the measure of the man. "Millions," says Hartmann, "stare at the phenomenon before a *genialer Kopf* pounces on the concept."[2] The genius is simply he to whom, when he opens his eyes upon the world, the "right" characters are the prominent ones. The fool is he who, with the same purposes as the genius, infallibly gets his attention tangled amid the accidents.

Schopenhauer expresses well this ultimate truth when he says that Intuition (by which in this passage he means the power to distinguish at a glance the essence amid the accidents) "is not only the source of all knowledge, but is knowledge κατ' ἐξοχήν . . . is real *insight.* . . . *Wisdom,* the true view of life, the right look at things, and the judgment that hits the mark, proceed from the mode in which the man conceives the world which lies before him . . . He who excels in this talent knows the (Platonic) ideas of the world and of life. Every case he looks at stands for countless cases; more and more he goes on to conceive of each thing in accordance with its true nature, and his acts like his judgments bear the stamp of his insight. Gradually his face too acquires the straight and piercing look, the expression of reason, and at last of wisdom. For the direct sight of essences alone can set its mark upon the face. Abstract knowledge about them has no such effect."[1]

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[1] *Logic,* English tr., p. 139.

[2] *Philosophie des Unbewussten,* 2te Auflage, p. 249.

The right conception for the philosopher depends then on his interests. Now the interest which he has above other men is that of reducing the manifold in thought to simple form. We can no more say why the philosopher is more peculiarly sensitive to this delight, than we can explain the passion some persons have for matching colours or for arranging cards in a game of solitaire. All these passions resemble each other in one point; they are all illustrations of what may be called the æsthetic Principle of Ease. Our pleasure at finding that a chaos of facts is at bottom the expression of a single underlying fact is like the relief of the musician at resolving a confused mass of sound into melodic or harmonic order. The simplified result is handled with far less mental effort than the original data; and a philosophic conception of nature is thus in no metaphorical sense a labour-saving contrivance. The passion for parsimony, for economy of means in thought, is thus the philosophic passion *par excellence*, and any character or aspect of the world's phenomena which gathers up their diversity into simplicity will gratify that passion, and in the philosopher's mind stand for that essence of things compared with which all their other determinations may by him be overlooked.

Mere universality or extensiveness is then the one mark the philosopher's conceptions must possess. Unless they appear in an enormous number of cases they will not bring the relief which is his main theoretic need. The knowledge of things by their causes, which is often given as a definition of rational knowledge, is useless to him unless the causes converge to a minimum number whilst still producing the maximum number of effects. The more multiple are the instances he can see to be cases of his fundamental concept, the more flowingly does his mind rove from fact to fact in the world. The phenomenal transitions are no real transitions; each item is the same old friend with a slightly altered dress. This passion for unifying things may gratify itself, as we all know, at truth's expense. Everyone has friends bent on system and everyone has observed how, when their system has once taken definite shape, they become absolutely blind and insensible to the most flagrant facts which cannot be made to fit into it. The ignoring of data is, in fact, the easiest and most popular mode of obtaining unity in one's thought.

But leaving these vulgar excesses let us glance briefly at some more dignified contemporary examples of the hypertrophy of the unifying passion.

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[1] *Welt als Wille u. Vorstellung*, II., p. 83

Its ideal goal gets permanent expression in the great notion of Substance, the underlying One in which all differences are reconciled. D'Alembert's often quoted lines express the postulate in its most abstract shape: "L'univers pour qui saurait l'embrasser d'un seul point de vue ne serait, s'il est permis de le dire, qu'un fait unique et une grande verité". Accordingly Mr. Spencer, after saying on page 158 of the first volume of his *Psychology*, that "no effort enables us to assimilate Feeling and Motion, they have nothing in common," cannot refrain on page 162 from invoking abruptly an "Unconditional Being common to the two".

The craving for Monism at any cost is the parent of the entire evolutionist movement of our day, so far as it pretends to be more than history. The Philosophy of Evolution tries to show how the world at any given time may be conceived as absolutely identical, except in appearance, with itself at all past times. What it most abhors is the admission of anything which, appearing at a given point, should be judged essentially other than what went before. Notwithstanding the *lacunae* in Mr. Spencer's system; notwithstanding the vagueness of his terms; in spite of the sort of jugglery by which his use of the word "nascent" is made to veil the introduction of new primordial factors like consciousness, as if, like the girl in *Midshipman Easy*, he could excuse the illegitimacy of an infant, by saying it was a very little one—in spite of all this, I say, Mr. Spencer is, and is bound to be, the most popular of all philosophers, because more than any other he seeks to appease our strongest theoretic craving. To undiscriminating minds his system will be a sop; to acute ones a programme full of suggestiveness.

When Lewes asserts in one place that the nerve-process and the feeling which accompanies it are not two things but only two "aspects" of one and the same thing, whilst in other passages he seems to imply that the cognitive feeling and the outward thing cognised (which is always other than the nerve-process accompanying the cognitive act) are again one thing in two aspects (giving us thereby as the ultimate truth One Thing in Three Aspects, very much as Trinitarian Christians affirm it to be One God in Three Persons),—the vagueness of his mode only testifies to the imperiousness of his need of unity.

The crowning feat of unification at any cost is seen in the Hegelian denial of the Principle of Contradiction. One who is willing to allow that A and not-A are one, can be checked by few farther difficulties in Philosophy.

III.

But alongside of the passion for simplification, there exists a sister passion which in some minds—though they perhaps form the minority—is its rival. This is the passion for distinguishing; it is the impulse to be *acquainted* with the parts rather than to comprehend the whole. Loyalty to clearness and integrity of perception, dislike of blurred outlines, of vague identifications, are its characteristics. It loves to recognise particulars in their full completeness, and the more of these it can carry the happier it is. It is the mind of Cuvier *versus* St. Hilaire, of Hume *versus* Spinoza. It prefers any amount of incoherence, abruptness and fragmentariness (so long as the literal details of the separate facts are saved) to a fallacious unity which swamps things rather than explains them.

Clearness *versus* Simplicity is then the theoretic dilemma, and a man's philosophic attitude is determined by the balance in him of these two cravings. When John Mill insists that the ultimate laws of nature cannot possibly be less numerous than the distinguishable qualities of sensation which we possess, he speaks in the name of this æsthetic demand for clearness. When Prof. Bain says[1] :—“There is surely nothing to be dissatisfied with, or to complain of in the circumstance that the elements of our experience are in the last resort two and not one . . . Instead of our being ‘unfortunate’ in not being able to know the essence of either matter or mind—in not comprehending their union, our misfortune would rather be to have to know anything different from what we do know,”—he is animated by a like motive. All makers of architectonic systems like that of Kant, all multipliers of original principles, all dislikers of vague monotony, whether it bear the character of Eleatic stagnancy or of Heraclitic change, obey this tendency. *Ultimate kinds* of feeling bound together in harmony by laws, which themselves are *ultimate kinds* of relation, form the theoretic resting-place of such philosophers.

The unconditional demand which this need makes of a philosophy is that its fundamental terms should be representable. Phenomena are analysable into feelings and relations. Causality is a relation between two feelings. To abstract the relation from the feelings, to unify all things by referring them to a first cause, and to leave this latter relation with no term of feeling before it, is to violate the fundamental habits of our thinking, to baffle the imagination, and to exasperate the minds of certain people much as everyone's eye is exasperated by a magic-lantern picture or a microscopic object out of focus. Sharpen it, we say, or for heaven's sake remove it altogether.

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[1] “On Mystery, etc.” *Fortnightly Review*, Vol. IV. N.S., page 394.

The matter is not at all helped when the word Substance is brought forward and the primordial causality said to obtain between this and the phenomena; for Substance *in se* cannot be directly imaged by feeling, and seems in fact but to be a peculiar form of relation between feelings—the relation of organic union between a group of them and time. Such relations, represented as non-phenomenal entities, become thus the *bête noire* and pet aversion of many thinkers. By being posited as existent they challenge our acquaintance but at the same instant defy it by being defined as noumenal. So far is this reaction against the treatment of relational terms as metempirical entities carried, that the reigning British school seems to deny their function even in their legitimate sphere, namely as phenomenal elements or "laws" cementing the mosaic of our feelings into coherent form. Time, likeness, and unlikeness are the only phenomenal relations our English empiricists can tolerate. One of the earliest and perhaps the most famous expression of the dislike to relations considered abstractedly is the well-known passage from Hume: "When we run over libraries, persuaded of these principles, what havoc must we make! If we take in our hand any volume of divinity or school metaphysic, for instance, let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion."[1]

Many are the variations which succeeding writers have played on this tune. As we spoke of the excesses of the unifying passion, so we may now say of the craving for clear representability that it leads often to an unwillingness to treat any abstractions whatever as if they were intelligible. Even to talk of space, time, feeling, power, &c., oppresses them with a strange sense of uncanniness. Anything to be real for them must be representable in the form of a *lump*. Its other concrete determinations may be abstracted from, but its *tangible* thinghood must remain. Minds of this order, if they can be brought to psychologise at all, abound in such phrases as "tracts" of consciousness, "areas" of emotion, "molecules" of feeling, "agglutinated portions" of thought, "gangs" of ideas &c., &c.

Those who wish an amusing example of this style of thought should read *Le Cerveau* by the anatomist Luys, surely the very worst book ever written on the much-abused subject of mental physiology. In another work, *Psychologie réaliste*, by P. Sièrebois (Paris 1876), it is maintained that "our ideas exist in us in a molecular condition, and are subject to continual movements. . . . Their mobility is as great as that of the molecules of air or any gas." When we fail to recall a word it is because our ideas are hid in some distant corner of the brain whence they cannot come to the muscles of articulation, or else "they have lost their ordinary fluidity". . . . "These ideal molecules are material portions of the brain which differs from all other matter precisely in this property which it possesses of subdividing itself into very attenuated portions which easily take on the likeness in form and quality of all external objects." In other words, when I utter the word 'rhinoceros' an actual little microscopic rhinoceros gallops towards my mouth.

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[1] *Essays*, ed. Green and Grose, II., p. 135.

A work of considerable acuteness, far above the vulgar materialistic level, is that of Czolbe, *Grundzüge einer extensionalen Erkenntnisstheorie* (1875). This author explains our ideas to be extended substances endowed with mutual penetrability. The matter of which they are composed is "elastic like india-rubber". When "concentrated" by "magnetic self-attraction" into the middle of the brain, its "intensity" is such that it becomes conscious. When the attraction ceases, the idea-substance expands and diffuses itself into infinite space and so sinks from consciousness.

Again passing over these *quasi*-pathological excesses, we come to a permanent and, for our purpose, most important fact—the fact that many minds of the highest analytic power will tolerate in Philosophy no unifying terms but elements immanent in phenomena, and taken in their phenomenal and representable sense. Entities whose attributes are not directly given in feeling, phenomenal relations functioning as entities, are alike rejected. Spinozistic Substance, Spencerian Unknowable, are abhorred as unrepresentable things, numerically additional to the representable world. The substance of things for these clear minds can be no more than their common measure. The phenomena bear to it the same relation that the different numbers bear to unity. These contain no other matter than the repeated unit, but they may be classed as prime numbers, odd numbers, even numbers, square numbers, cube numbers, &c., just as truly and naturally as we class concrete things. The molecular motions, of which physicists hope that some day all events and properties will be seen to consist, form such an immanent unity of colossal simplifying power. The "infinitesimal event" of various modern writers, Taine for example, with its two "aspects," inner and outer, reaches still farther in the same direction. Writers of this class, if they deal with Psychology, repudiate the "soul" as a scholastic entity. The phenomenal unity of consciousness must flow from some element immutably present in each and every representation of the individual and binding the whole into one. To unearth and accurately define this phenomenal self becomes one of the fundamental tasks of Psychology.

But the greatest living insister on the principle that unity in our account of things shall not overwhelm clearness, is Charles Renouvier. His masterly exposition of the irreducible categories of thought in his *Essais de Critique générale* ought to be far better known among us than it is. The onslaughts which this eminently clear-headed writer has made and still makes in his weekly journal, the *Critique Philosophique*, on the vanity of the evolutionary principle of simplification, which supposes that you have explained away all distinctions by simply saying "they arise" instead of "they are," form the ablest criticism which the school of Evolution has received. Difference "thus displaced, transported from the *esse* to the *fieri*, is it any the less postulated? And does the *fieri* itself receive the least commencement of explanation when we suppose that everything which occurs, occurs little by little, by insensible degrees, so that, if we look at any one of these degrees, what happens does so as easily and clearly as if it did not happen at all? . . . If we want a continuous production *ex nihilo*, why not say so frankly, and abandon the idea of a 'transition without break' which explains really nothing?"[1]

IV.

Our first conclusion may then be this: No system of philosophy can hope to be universally accepted among men which grossly violates either of the two great æsthetic needs of our logical nature, the need of unity and the need of clearness, or entirely subordinates the one to the other. Doctrines of mere disintegration like that of Hume and his successors, will be as widely unacceptable on the one hand as doctrines of merely engulphing substantialism like those of Schopenhauer, Hartmann and Spencer on the other. Can we for our own guidance briefly sketch out here some of the conditions of most favourable compromise?

In surveying the connexions between data we are immediately struck by the fact that some are more intimate than others. Propositions which express those we call necessary truths; and with them we contrast the laxer collocations and sequences which are known as empirical, habitual or merely fortuitous. The former seem to have an *inward* reasonableness which the latter are deprived of. The link, whatever it be, which binds the two phenomena together, seems to extend from the heart of one into the heart of the next, and to be an essential reason why the facts should always and indefeasibly be as we now know them. "Within the pale we stand." As Lotze says[1]:— "The intellect is not satisfied with merely associated representations. In its constant critical activity thought seeks to refer each representation to the rational ground which conditions the alliance of what is associated and proves that what is grouped *belongs* together. So it separates from each other those impressions which merely coalesce without inward connexions, and it renews (while corroborating them) the bonds of those which, by the inward kinship of their content, have a right to permanent companionship."

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[1] *Critique Philosophique*, 12 Juillet, 1877, p. 383.

On the other hand many writers seem to deny the existence of any such inward kinship or rational bond between things. Hume says: "All our distinct perceptions are distinct existences and the mind never perceives any real connexion among distinct existences".[2]

Hume's followers are less bold in their utterances than their master, but throughout all recent British Nominalism we find the tendency to enthrone mere juxtaposition as lord of all and to make of the Universe what has well been styled a Nulliverse. "For my part," says Prof. Huxley, "I utterly repudiate and anathematise the intruder [Necessity]. Fact I know; and Law I know; but what is this Necessity, save an empty shadow of the mind's own throwing?"

And similarly J. S. Mill writes: "What is called explaining one law by another is but substituting one mystery for another, and does nothing to render the course of nature less mysterious. We can no more assign a *why* for the more extensive laws than for the partial ones. The explanation may substitute a mystery which has become familiar and has grown to seem not mysterious for one which is still strange. And this is the meaning of explanation in common parlance. . . . The laws thus explained or resolved are said to be *accounted for;* but the expression is incorrect if taken to mean anything more than what has been stated."[3]

And yet the very pertinacity with which such writers remind us that our explanations are in a strict sense of the word no explanations at all; that our causes never unfold the essential nature of their effects; that we never seize the inward reason why attributes cluster as they do to form things, seems to prove that they possess in their minds some ideal or pattern of what a genuine explanation would be like in case they should meet it. How could they brand our current explanations as spurious, if they had no positive notion whatever of the real thing?

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[1] *Microcosmus*, 2nd ed. I., p. 261.

[2] *Treatise on Human Nature*, ed. T. H. Green, I., p. 559.

[3] *Logic*, 8th Edition, I., p. 549.

Now have we the real thing? And yet may they be partly right in their denials? Surely both; and I think that the shares of truth may be easily assigned. Our "laws" *are* to a great extent but facts of larger growth, and yet things *are* inwardly and necessarily connected notwithstanding. The entire process of philosophic simplification of the chaos of sense consists of two acts, Identification and Association. Both are principles of union and therefore of theoretic rationality; but the rationality between things associated is outward and custom-bred. Only when things are identified do we pass inwardly and necessarily from one to the other.

The first step towards unifying the chaos is to classify its items. "Every concrete thing," says Prof. Bain, "falls into as many classes as it has attributes."[1] When we pick out a certain attribute to conceive it by, we literally and strictly identify it *in that respect* with the other concretes of the class having that attribute for its essence, concretes which the attribute recalls. When we conceive of sugar as a white thing it is *pro tanto* identical with snow; as a sweet thing it is the same as liquorice; *quâ* hydro-carbon, as starch. The attribute picked out may be *per se* most uninteresting and familiar, but if things superficially very diverse can be found to possess it buried within them and so be assimilated with each other, "the mind feels a peculiar and genuine satisfaction. . . . The intellect, oppressed with the variety and multiplicity of facts, is joyfully relieved by the simplification and the unity of a great principle."[2]

Who does not feel the charm of thinking that the moon and the apple are, as far as their relation to the earth goes, identical? of knowing respiration and combustion to be one? of understanding that the balloon rises by the same law whereby the stone sinks? of feeling that the warmth in one's palm when one rubs one's sleeve is identical with the motion which the friction checks? of recognising the difference between beast and fish to be only a higher degree of that between human father and son? of believing our strength when we climb or chop to be no other than the strength of the sun's rays which made the oats grow out of which we got our morning meal?

We shall presently see how the attribute performing this unifying function, becomes associated with some other attribute to form what is called a general law. But at present we must note that many sciences remain in this first and simplest classificatory stage. A classificatory science is merely one the fundamental concepts of which have few associations or none with other concepts. When I say a man, a lizard, and a frog are one in being vertebrates, the identification, delightful as it is in itself, leads me hardly any farther. "The idea that all the parts of a flower are modified leaves, reveals a connecting law, which surprises us into acquiescence. But now try and define the leaf, determine its essential characteristics, so as to include all the forms that we have named. You will find yourself in a difficulty, for all distinctive marks vanish, and you have nothing left, except that a leaf in this wider sense of the term is a lateral appendage of the axis of a plant. Try then to express the proposition 'the parts of a flower are modified leaves' in the language of scientific definition, and it reads, 'the parts of the flower are lateral appendages of the axis'."[1] Truly a bald result! Yet a dozen years ago there hardly lived a naturalist who was not thrilled with rapture at identifications in "philosophic" anatomy and botany exactly on a par with this. Nothing could more clearly show that the gratification of the sentiment of rationality depends hardly at all on the worth of the attribute which strings things together but almost exclusively on the mere fact of their being strung at all. Theological implications were the utmost which the attributes of archetypal zoology carried with them, but the wretched poverty of these proves how little they had to do with the enthusiasm engendered by archetypal identifications. Take Agassiz's conception of class-characters, order-characters &c., as "thoughts of God". What meagre thoughts! Take Owen's archetype of the vertebrate skeleton as revealing the artistic temperament of the Creator. It is a grotesque figure with neither beauty nor ethical suggestiveness, fitted rather to discredit than honour the Divine Mind. In short the conceptions led no farther than the identification pure and simple. The transformation which Darwin has effected in the classificatory sciences is simply this—that in his theory the class-essence is not a unifying attribute pure and simple, but an attribute with wide associations. When a frog, a man and a lizard are recognised as one, not simply in having the same back-bone, &c., but in being all offspring of one parent, our thought instead of coming to a standstill, is immediately confronted with further problems and, we hope, solutions. Who were that parent's ancestors and cousins? Why was he chosen out of all to found such an enormous line? Why did he himself perish in the struggle to survive? &c.

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[1] *Ment. and Mor. Science*, p. 107.

[2] Bain, *Logic*, II., p. 120.

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[1] Helmholtz, *Popular Scientific Lectures*, p. 47.

Association of class-attributes *inter se,* is thus the next great step in the mind's simplifying industry. By it Empirical Laws are founded and sciences, from classificatory, become explanatory. Without it we should be in the position of a judge who could only decide that the cases in his court belonged each to a certain class, but who should be inhibited from passing sentence, or attaching to the class-name any further notion of duty, liability, or penalty. This *coupling* of the class-concept with certain determinate *consequences* associated therewithal, is what is practically important in the laws of nature as in those of society.

When, for example, we have identified prisms, bowls of water, lenses and strata of air as distorting media, the next step is to learn that all distorting media refract light rays towards the perpendicular. Such additional determination makes a law. But this law itself may be as inscrutable as the concrete fact we started from. The entrance of a ray and its swerving towards the perpendicular, may be simply *associated* properties, with, for aught we see, no inwardly necessary bond, coupled together as empirically as the colour of a man's eyes with the shape of his nose.

But such an empirical law may have its terms again classified. The essence of the medium may be to retard the light-wave's speed. The essence (in an obliquely-striking wave) of deflexion towards the perpendicular may be earlier retardation of that part of the wave-front which enters first, so that the remaining portion swings round it before getting in. Medium and bending towards perpendicular thus coalesce into the one identical fact of retardation. This being granted gives an inward explanation of all above it. But retardation itself remains an empirical coupling of medium and light-movement until we have classified both under a single concept. The explanation reached by the insight that two phenomena are at bottom one and the same phenomenon, is rational in the ideal and ultimate sense of the word. The ultimate identification of the subject and predicate of a mathematical theorem, an identification which we can always reach in our reasonings, is the source of the inward necessity of mathematical demonstration. We see that the top and bottom of a parallelogram must be equal as soon as we have unearthed in the parallelogram the attribute that it consists of two equal, juxtaposed triangles of which its top and bottom form homologous sides—that is, as soon as we have seen that top and bottom have an identical essence, their length, as being such sides, and that their position is an accident. This criterion of identity is that which we all unconsciously use when we discriminate between brute fact and explained fact. There is no other test.

In the contemporary striving of physicists to interpret every event as a case of motion concealed or visible, we have an adumbration of the way in which a common essence may make the sensible heterogeneity of things inwardly rational. The cause is one motion, the effect the same motion transferred to other molecules; in other words, physics aims at the same kind of rationality as mathematics. In the second volume of Lewes's *Problems* we find this anti-Humean view that the effect is the "procession" of the cause, or that they are one thing in two aspects brought prominently forward.[1]

And why, on the other hand, do all our contemporary physical philosophers so vie with each other in the zeal with which they reiterate that in reality nerve-processes and brain-tremors "explain" nothing of our feelings? Why does "the chasm between the two classes of phenomena still remain intellectually impassable"?[2] Simply because, in the words of Spencer which we quoted a few pages back, feeling and motion have nothing whatever in common, no identical essence by which we can conceive both, and so, as Tyndall says, "pass by a process of reasoning from one to the other". The "double-aspect" school postulate the blank form of "One and the Same Fact," appeal to the image of the circle which is both convex and concave, and think that they have by this symbolic identification made the matter seem more rational.

Thus then the connexions of things become strictly rational only when, by successive substitutions of essences for things, and higher for lower essences, we succeed in reaching a point of view from which we can view the things as one. A and B are concretes; *a* and *b* are partial attributes with which for the present case we conceive them to be respectively identical (classify them) and which are coupled by a general law. M is a further attribute which rationally explains the general law as soon as we perceive it to form the essence of both *a* and *b*, as soon as we identify them with each other through it. The softening of asphalt pavements in August is explained first by the empirical law that heat, which is the essence of August, produces melting, which is the essence of the pavement's change, and secondly this law is inwardly rationalised by the conception of both heat and melting being at bottom one and the same fact, namely, increased molecular mobility.

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[1] This view is in growing favour with thinkers fed from empirical sources. See Wundt's *Physikalische Axiome* and the important article by A. Riehl, "Causalitat und Identität," in *Vierteljahrssch. f. wiss. Philos.* Bd. I., p. 265. The Humean view is ably urged by Chauncey Wright, *Philosophical Discussions*, N.Y. 1877, p. 406.

[2] Tyndall, *Fragments of Science*, 2nd ed., p. 121.

Proximate and ultimate explanations are then essentially the same thing. Classification involves all that is inward in any explanation, and a perfected rationalisation of things means only a *completed* classification of them. Every one feels that all explanation whatever, even by reference to the most proximate empirical law, does involve something of the essence of inward rationalisation. How else can we understand such words as these from Prof. Huxley? "The fact that it is impossible to comprehend how it is that a physical state gives rise to a mental state, no more lessens the value of our [empirical] explanation of the latter case, than the fact that it is utterly impossible to comprehend how motion is communicated from one body to another weakens the force of the explanation of the motion of one billiard-ball by showing that another has hit it."[1]

To return now to the philosophic problem. It is evident that our idea of the universe cannot assume an inwardly rational shape until each separate phenomenon is conceived as fundamentally identical with every other. But the important fact to notice is that in the steps by which this end is reached the really rationalising, pregnant moments are the successive steps of conception, the moments of picking out essences. The association of these essences into laws, the empirical coupling, is done by nature for us and is hardly worthy to be called an intellectual act. On the other hand the coalescence-into-one of all items in which the same essence is discerned, in other words the perception that an essence whether ultimate, simple and universal, or proximate and specific, is identical with itself wherever found, is a barren truism. The living question always is, Where *is* it found? To stand before a phenomenon and say *what* it is; in other words to pick out from it the embedded character (or characters) also embedded in the maximum number of *other* phenomena, and so identify it with them—here lie the stress and strain, here the test of the philosopher. So we revert to what we said far back: the genius can do no more than this; in Butler's words—

"He knows *what's what*, and that's as high
As metaphysic wit can fly."[2]

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[1] "Modern Symposium," *XIXth Century*, Vol. I., 1877.

[2] This doctrine is perfectly congruous with the conclusion that identities are the only propositions necessary *à priori*, though of course it does not necessarily lead to that conclusion, since there may be in things elements which are not simple but bilateral or synthetic, like straightness and shortness in a line, convexity and concavity in a curve. Should the empiricists succeed in their attempt to resolve such Siamese-twin elements into habitual juxtapositions, the Principle of Identity would become the only *à priori* truth, and the philosophic problem like all our ordinary problems

V.

We have now to ask ourselves how far this identification may be legitimately carried and what, when perfected, its real worth is. But before passing to these further questions we had best secure our ground by defending our fundamental notion itself from nominalistic attacks. The reigning British school has always denied that the same attribute *is* identical with itself in different individuals. I started above with the assumption that when we look at a subject with a certain purpose, regard it from a certain point of view, some one attribute becomes its essence and identifies it, *pro hac vice,* with a class. To this James Mill replies: "But what is meant by a mode of regarding things? This is mysterious; and is as mysteriously explained, when it is said to be the taking into view the particulars in which individuals agree. For what is there, which it is possible for the mind to take into view, in that in which individuals agree? Every colour is an individual colour, every size is an individual size, every shape is an individual shape. But things have no individual colour in common, no individual shape in common; no individual size in common; that is to say, they have neither shape, colour, nor size in common. What, then, is it which they have in common, which the mind can take into view? Those who affirmed that it was something, could by no means tell. They substituted words for things; using vague and mystical

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would become a question as to facts: *What* are these facts which we perceive to exist? Are there any existing facts corresponding to this or that conceived class? Lewes, in the interesting discussion on necessary and contingent truth in the Prolegomena to his *History* and in Chap. XIII. of his first *Problem,* seems at first sight to take up an opposite position, in that he maintains our commonly so-called contingent truths to be really necessary. But his treatment of the question most beautifully confirms the doctrine I have advanced in the text. If the proposition "A is B" is ever true, he says it is so necessarily. But he proves the necessity by showing that what we mean by A is its essential attribute x, and what we mean by B is again x. Only *in so far* as A and B are identical is the proposition true. But he admits that a fact sensibly just like A may lack x, and a fact sensibly unlike B may have it. In either case the proposition, to be true, must change. The contingency which he banishes from propositions, he thus houses in their terms; making as I do the act of conception, subsumption, classification, intuition, naming, or whatever else one may prefer to call it, the pivot on which thought turns. Before this act there is infinite indeterminateness—A and B may be anything. After the act there is the absolute certainty of truism—all x's are the same. *In* the act—is A, x? *is* B, x? or not?—we have the sphere of truth and error, of living experience, in short, of Fact. As Lewes himself says: "The only necessity is that a thing is what it is; the only contingency is that our proposition may not state what the thing is" *(Problems,* Vol. I., p. 395).

phrases, which, when examined, meant nothing;"[1] the truth being according to this heroic author, that the only thing that can be possessed in common is a name. Black in the coat and black in the shoe agree only in that both are named black—the fact that on this view the *name* is never the same when used twice being quite overlooked. But the blood of the giants has grown weak in these days, and the nominalistic utterances of our contemporaries are like sweet-bells jangled, sadly out of tune. If they begin with a clear nominalistic note, they are sure to end with a grating rattle which sounds very like *universalia in re*, if not *ante rem.* In M. Taine,[2] who may fairly be included in the British School, they are almost *ante rem.* This *bruit de cloche fêlée*, as the doctors say, is pathognomonic of the condition of Ockham's entire modern progeny.

But still we may find expressions like this: "When I say that the sight of any object gives me the *same* sensation or emotion to-day that it did yesterday, or the *same* which it gives to some other person, this is evidently an incorrect application of the word *same;* for the feeling which I had yesterday is gone never to return. . . . Great confusion of ideas is often produced, and many fallacies engendered, in otherwise enlightened understandings, by not being sufficiently alive to the fact (in itself always to be avoided), that they use the same name to express ideas so different as those of identity and undistinguishable resemblance."[3]

What are the exact facts? Take the sensation I got from a cloud yesterday and from the snow to-day. The white of the snow and that of the cloud differ in place, time and associates; they agree in quality, and we may say in origin, being in all probability both produced by the activity of the same brain tract. Nevertheless, John Mill denies our right to call the quality the same. He says that *it* essentially differs in every different occasion of its appearance, and that no two phenomena of which it forms part are really identical even as far as *it* goes. Is it not obvious that to maintain this view he must abandon the phenomenal plane altogether? Phenomenally considered, the white *per se is* identical with itself wherever found in snow or in cloud, to-day or to-morrow. If any nominalist deny the identity I ask him to point out the difference. *Ex hypothesi* the qualities are sensibly indistinguishable, and the only difference he can indicate is that of time and place; but these are not differences in the quality. If our quality be not the same with itself, what meaning has the word "same"? Our adversary though silenced may still grudge assent, but if he analyse carefully the grounds of this reluctance he will, I think, find that it proceeds from a difficulty in believing that the *cause* of the quality can be just the same at different times. In other words he abandons altogether the platform of the sensible phenomenon and ascends into the empyrean, postulating some inner noumenal principle of *quality* + *time* + *place* + *concomitants.* The entire group being never twice alike, of course this ground, or being *in se,* of the quality must each time be distinct and, so to speak, personal. This transcendental view is frankly avowed by Mr. Spencer in his *Psychology,* II., p. 63—(the passage is too complex to quote); but all nominalists must start from it, if they think clearly at all.[1]

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[1] *Analysis*, Vol. I., p. 249.

[2] How can M. Taine fail to have perceived that the entire doctrine of "Substitution" so clearly set forth in the nominalistic beginning of his brilliant book is utterly senseless except on the supposition of realistic principles like those which he so admirably expounds at its close? How *can* the image be a useful substitute for the sensation, the tendency for the image, the name for the tendency, unless sensation, image, tendency and name be *identical* in some respect, in respect namely of function, of the relations they enter into? Were this realistic basis laid at the outset of Taine's *De l'Intelligence*, it would be one of the most consistent instead of one of the most self-contradictory works of our day.

[3] J. S. Mill, *Logic*, 8th Ed., I., p. 77.

We, who are phenomenists, may leave all metaphysical entities which have the power of producing whiteness to their fate, and content ourselves with the irreversible *datum* of perception that the whiteness after it *is* manifested is the same, be it here or be it there. Of all abstractions such entities are the emptiest, being ontological hypostatisations of the mere susceptibility of being distinguished, whilst this susceptibility has its real, nameable, phenomenal ground all the while, in the time, place, and relations affected by the attribute considered.

The truly wise man will take the phenomenon in its entirety and permanently sacrifice no one aspect to another. Time, place, and relations differ, he will freely say; but just as freely admit that the quality is identical with itself through all these differences. Then if, *to satisfy the philosophic interest,* it becomes needful to conceive this identical part as the essence of the several entire phenomena, he will gladly call them one; whilst if some other interest be paramount, the points of difference will become essential and the identity an accident. Realism is eternal and invincible in this phenomenal sense.

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[1] I fear that even after this some persons will remain unconvinced, but then it seems to me the matter has become a dispute about words. If my supposed adversary, when he says that different times and places prevent a quality which appears in them from ever being twice the same, will admit that they do not make it in any conceivable way *different,* I will willingly abandon the words "same" and "identical" to his fury; though I confess it becomes rather inconvenient to have no single positive word left by which to indicate complete absence of difference.

We have thus vindicated against all assailants our title to consider the world as a matter susceptible of rational formulation in the deepest, most inward sense, and not as a disintegrated sand-heap; and we are consequently at liberty to ask: (1) Whether the mutual identification of its items meet with any necessary limit; and (2) What, supposing the operation completed, its real worth and import amount to.

VI.

In the first place, when we have rationally explained the connexion of the items A and B by identifying both with their common attribute x, it is obvious that we have really explained only so much of these items as *is* x. To explain the connexion of choke-damp and suffocation by the lack of oxygen is to leave untouched all the other peculiarities both of choke-damp and of suffocation, such as convulsions and agony on the one hand, density and explosibility on the other. In a word, so far as A and B contain l, m, n and $o, p, q,$ respectively in addition to x, they are not explained by x. Each additional particularity makes its distinct appeal to our rational craving. A single explanation of a fact only explains it from a single point of view.[1] The entire fact is not accounted for until each and all of its characters have been identified with their likes elsewhere. To apply this now to universal formulas we see that the explanation of the world by molecular movements explains it only so far as it actually *is* such movements. To invoke the "Unknowable" explains only so much as is unknowable; "Love" only so much as is love; "Thought," so much as is thought; "Strife" so much as is strife. All data whose actual phenomenal quality cannot be identified with the attribute invoked as Universal Principle, remain outside as ultimate, independent *kinds* or *natures*, associated by empirical laws with the fundamental attribute but devoid of truly rational kinship with it. If A and B are to be *thoroughly* rationalised together, l, m, n and $o, p, q,$ must each and all turn out to be so many cases of x in disguise. This kind of wholesale identification is being now attempted by physicists when they conceive of all the ancient, separate Forces as so many determinations of one and the same essence, molecular mass, position and velocity.

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[1] In the number of the *Journal of Speculative Philosophy* for April 1879, Prof. John Watson most admirably asserts and expresses the truth which constitutes the back-bone of this article, namely that every manner of conceiving a fact is relative to some interest, and that there are no absolutely essential attributes—every attribute having the right to call itself essential in turn, and the truth consisting of nothing less than all of them together. I avow myself unable to comprehend as yet this author's Hegelian point of view, but his pages 164 to 172 are a most welcome corroboration of what I have striven to advance in the text.

Suppose for a moment that this idea were carried out for the physical world,—the subjective sensations produced by the different molecular energies, colour, sound, taste, &c., &c., the relations of likeness and contrast, of time and position, of ease and effort, the emotions of pain and delight, in short, all the mutually irreducible categories of mental life, would still remain over. Certain writers strive in turn to reduce all these to a common measure, the primordial unit of feeling, or infinitesimal mental event which builds them up as bricks build houses. But this case is wholly different from the last. The physical molecule is conceived not only as having a being *in se* apart from representation, but as being essentially of representable kind. With magnified perceptions we should actually see it. The mental molecule, on the other hand, has by its very definition no existence except in being felt, and yet by the same definition never is felt. It is neither a fact in consciousness nor a fact out of consciousness, and falls to the ground as a transcendental absurdity. Nothing could be more inconclusive than the empirical arguments for the existence of this noumenal feeling which Taine and Spencer draw from the sense of hearing.

But let us for an instant waive all this and suppose our feelings reduced to one. We should then have two primordial natures, the molecule of matter and the molecule of mind, coupled by an empirical law. Phenomenally incommensurable, the attempt to reduce them to unity by calling them two "aspects" is vain so long as it is not pointed out who is there *adspicere;* and the *Machtspruch* that they are expressions of one underlying Reality has no rationalising function so long as that reality is confessed unknowable. Nevertheless the absolute necessity of an identical material substratum for the different species of feeling on the one hand, and the genera feeling and motion on the other, if we are to have any evolutionary *explanation* of things, will lead to ever renewed attempts at an atomistic hylozoism. Already Clifford and Taine, Spencer, Fechner, Zöllner, G. S. Hall, and more besides, have given given themselves up to this ideal.

But again let us waive this criticism and admit that even the chasm between feeling and motion may be rationally bridged by the conception of the bilateral atom of being. Let us grant that this atom by successive compoundings with its fellows builds up the universe; is it not still clear that each item in the universe would still be explained only as to its general *quality* and not as to its other particular determinations? The particulars depend on the exact number of primordial atoms existing at the outset and their exact distances from each other. The "universal formula" of Laplace which Du Bois-Reymond has made such striking use of in his lecture *Ueber die Grenzen des Naturerkennens*, cannot possibly get along with fewer than this almost infinite number of data. Their homogeneity does not abate their infinity—each is a separate empirical fact.

And when we now retract our provisional admissions, and deny that feelings incommensurable *inter se* and with motion can be possibly unified, we see at once that the reduction of the phenomenal Chaos to rational form must stop at a certain point. It is a limited process,—bounded by the number of elementary attributes which cannot be mutually identified, the specific *qualia* of representation, on the one hand, and, on the other, by the number of entities (atoms or monads or what not) with their complete mathematical determinations, requisite for deducing the fulness of the concrete world. All these irreducible data form a system, no longer phenomenally rational, *inter se*, but bound together by what is for us an empirical law. We merely find the system existing as a matter of fact, and write it down. In short, a plurality of categories and an infinity of primordial entities, determined according to these categories, is the minimum of philosophic baggage, the only possible compromise between the need of clearness and the need of unity. All simplification, beyond this point, is reached either by throwing away the particular concrete determinations of the fact to be explained, or else it is illusory simplification. In the latter case it is made by invoking some sham term, some pseudo-principle, and conglomerating it and the data into one. The principle may be an immanent element but no true universal: Sensation, Thought, Will are principles of this kind; or it may be a transcendent entity like Matter, Spirit, Substance, the Unknowable, the Unconscious, &c.[1] Such attempts do but postulate unification, not effect it; and if taken avowedly to represent a mere claim, may be allowed to stand. But if offered as actual explanations, though they may serve as a sop to the rabble, they can but nauseate those whose philosophic appetite is genuine and entire. If we choose the former mode of simplification and are willing to abstract from the particulars of time, place and combination in the concrete world, we may simplify our elements very much by neglecting the numbers and collocations of our primordial elements and attending to their qualitative categories alone. The system formed by these will then really rationalise the universe so far as its qualities go. Nothing can happen in it incommensurable with these data, and practically this abstract treatment of the world as quality is all that philosophers aim at. They are satisfied when they can see it to be a place in which none but these qualities appear, and in which the same quality appears not only once but identically repeats itself. They are willing to ignore, or leave to special sciences the knowledge of what times, places and concomitants the recurring quality is likely to affect. The *Essais de Critique générale* of Renouvier form, to my mind, by far the ablest answer to the philosophic need thus understood, clearness and unity being there carried each to the farthest point compatible with the other's existence.

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[1] The idea of "God" in its popular function is open to neither of these objections, being conceived as a phenomenon standing in causal relation to other phenomena. As such, however, it has no unifying function of a properly *explanatory* kind.

VII.

And now comes the question as to the worth of such an achievement. How much better off is the philosopher when he has got his system than he was before it? As a mere phenomenal system it stands between two fires. On the one hand the unbridled craver of unity scorns it, as being incompletely rational, still to a great extent an empirical sand-heap; whilst on the other the practical man despises its empty and abstract barrenness. All it says is that the elements of the world are such and such and that each is identical with itself wherever found; but the question: Where is it found? (which is for the practical man the all-important question about each element) he is left to answer by his own wit. Which, of all the essences, shall here and now be held the essence of this concrete thing, the fundamental philosophy never attempts to decide. We seem thus led to the conclusion that a system of categories is, on the one hand, the only possible philosophy, but is, on the other, a most miserable and inadequate substitute for the fulness of the truth. It is a monstrous abridgment of things which like all abridgments is got by the absolute loss and casting out of real matter. This is why so few human beings truly care for Philosophy. The particular determinations which she ignores are the real matter exciting other æsthetic and practical needs, quite as potent and authoritative as hers. What does the moral enthusiast care for philosophical ethics? Why does the *Æsthetik* of every German philosopher appear to the artist like the abomination of desolation? What these men need is a particular counsel, and no barren, universal truism.

> "Grau, theurer Freund, ist alle Theorie
> Und grün des Lebens goldner Baum."

The entire man, who feels all needs by turns, will take nothing as an equivalent for Life but the fulness of living itself. Since the essences of things are as a matter of fact spread out and disseminated through the whole extent of time and space, it is in their spread-outness and alternation that he will enjoy them. When weary of the concrete clash and dust and pettiness, he will refresh himself by an occasional bath in the eternal spring, or fortify himself by a daily look at the immutable Natures. But he will only be a visitor, not a dweller in the region; he will never carry the philosophic yoke upon his shoulders, and when tired of the gray monotony of her problems and insipid spaciousness of her results, will always escape gleefully into the teeming and dramatic richness of the concrete world.

So our study turns back here to its beginning. We started by calling every concept a teleological instrument (*supra* p. 319). No concept can be a valid substitute for a concrete reality except with reference to a particular interest in the conceiver. The interest of theoretic rationality, the relief of identification, is but one of a thousand human purposes. When others rear their heads it must pack up its little bundle and retire till its turn recurs. The exaggerated dignity and value that philosophers have claimed for their solutions is thus greatly reduced. The only virtue their theoretic conception need have is simplicity, and a simple conception is an equivalent for the world only so far as the world is simple; the world meanwhile, whatever simplicity it may harbour, being also a mightily complex affair. Enough simplicity remains, however, and enough urgency in our craving to reach it, to make the theoretic function one of the most invincible and authoritative of human impulses. All ages have their intellectual populace. That of our own day prides itself particularly on its love of Science and Facts and its contempt for all metaphysics. Just weaned from the Sunday-school nurture of its early years, with the taste of the catechism still in its mouth, it is perhaps not surprising that its palate should lack discrimination and fail to recognise how much of ontology is contained in the "Nature," "Force" and "Necessary Law," how much mysticism in the "Awe," "Progress" and "Loyalty to Truth" or whatever the other phrases may be with which it sweetens its rather meagre fare of fragmentary physiology and physics. But its own inconsistency should teach it that the eradication of music, painting and poetry, games of chance and skill, manly sports and all other æsthetic energies from human life, would be an easy task compared with that suppression of Metaphysics which it aspires to accomplish. Metaphysics of some sort there must be. The only alternative is between the good Metaphysics of clear-headed Philosophy and the trashy Metaphysics of vulgar Positivism. Metaphysics, the quest of the last clear elements of things, is but another name for thought which seeks thorough self-consistency; and so long as men must think at all, some will be found willing to forsake all else to follow that ideal.

VIII.

Suppose then the goal attained. Suppose we have at last a Metaphysics in which clearness and unity join friendly hands. Whether it be over a system of interlocked elements, or over a substance, or over such a simple fact as "phenomenon" or "representation," need not trouble us now. For the discussion which follows we will call the result the metaphysical Datum and leave its composite or simple nature uncertain. Whichever it be, and however limited as we have seen be the sphere of its utility, it satisfies, if no other need, at least the need of rationality. But now I ask: Can that which is the ground of rationality in all else be itself properly called rational? It would seem at first sight that in the sense of the word we have hitherto alone considered, it might. One is tempted at any rate to say that, since the craving for rationality in a theoretic or logical sense consists in the identification of one thing with all other outstanding things, a unique datum which left nothing else outstanding would leave no play for further rational demand, and might thus be said to quench that demand or to be rational *in se.* No *otherness* being left to annoy the mind we should sit down at peace.

In other words, just as the theoretic tranquillity of the boor results from his spinning no further considerations about his chaotic universe which may prevent him from going about his practical affairs; so any brute datum whatever (provided it were simple and clear) ought to banish mystery from the Universe of the philosopher and confer perfect theoretic peace, inasmuch as there would then be for him absolutely no further considerations to spin.

This in fact is what some persons think. Prof. Bain says: "A difficulty is solved, a mystery unriddled, when it can be shown to resemble something else; to be an example of a fact already known. Mystery is isolation, exception, or it may be apparent contradiction: the resolution of the mystery is found in assimilation, identity, fraternity. When all things are assimilated, so far as assimilation can go, so far as likeness holds, there is an end to explanation; there is an end to what the mind can do, or can intelligently desire. . . . The path of science as exhibited in modern ages, is towards generality, wider and wider, until we reach the highest, the widest laws of every department of things; there explanation is finished, mystery ends, perfect vision is gained."

But unfortunately this first answer will not hold. Whether for good or evil, it is an empirical fact that the mind is so wedded to the process of seeing an *other* beside every item of its experience, that when the notion of an absolute datum which is all is presented to it, it goes through its usual procedure and remains *pointing* at the void beyond, as if in that lay further matter for contemplation. In short, it spins for itself the further positive consideration of a Nonentity enveloping the Being of its datum; and as that leads to no issue on the further side, back recoils the thought in a circle towards its datum again. But there is no logical identity, no natural bridge between nonentity and this particular datum, and the thought stands oscillating to and fro, wondering "Why was there anything but nonentity? Why just this universal datum and not another? Why anything at all?" and finds no end, in wandering mazes lost. Indeed, Prof. Bain's words are so untrue that in reflecting men it is just when the attempt to fuse the manifold into a single totality has been most successful, when the conception of the universe as a *fait unique* (in D'Alembert's words) is nearest its perfection, that the craving for further explanation, the ontological *θαυμάζειν* arises in its extremest pungency.

As Schopenhauer says, "The uneasiness which keeps the never-resting clock of metaphysics in motion, is the consciousness that the non-existence of this world is just as possible as its existence".[1]

The notion of Nonentity may thus be called the parent of the philosophic craving in its subtlest and profoundest sense. Absolute existence is absolute mystery. Although *selbstständig,* it is not *selbstverständlich;* for its relations with the Nothing remain unmediated to our understanding. One philosopher only, so far as I know, has pretended to throw a logical bridge over this chasm. Hegel, by trying to shew that Nonentity and Being as actually determined are linked together by a series of successive identities, binds the whole of possible thought into an adamantine unity with no conceivable outlying notion to disturb the free rotary circulation of the mind within its bounds. Since such unchecked motion constitutes the feeling of rationality, he must be held, if he has succeeded, to have eternally and absolutely quenched all its logical demands.

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[1] *Welt als Wille &c.*, 3 Auflage, I., p. 189.

But for those who, like most of us, deem Hegel's heroic effort to have failed, nought remains but to confess that when all has been unified to its supreme degree, (Prof. Bain to the contrary notwithstanding), the notions of a Nonentity, or of a possible Other than the actual, may still haunt our imagination and prey upon the ultimate data of our system. The bottom of Being is left logically opaque to us, a *datum* in the strict sense of the word, something which we simply come upon and find, and about which, (if we wish to act,) we should pause and wonder as little as possible. In this confession lies the lasting truth of Empiricism, and in it Empiricism and imaginative Faith join hands. The logical attitude of both is identical, they both say there is a *plus ultra* beyond all we know, a womb of unimagined other possibility. They only differ in their sentimental temper: Empiricism says, "Into the *plus ultra* you have no right to carry your anthropomorphic affirmations"; Faith says, "You have no right to extend to it your denials". The mere ontologic emotion of wonder, of mystery, has in some minds such a tinge of the rapture of sublimity, that for this æsthetic reason alone, it will be difficult for any philosophic system completely to exorcise it.

In truth, the philosopher's logical tranquillity is after all in essence no other than the boor's. Their difference regards only the point at which each refuses to let further considerations upset the absoluteness of the data he assumes. The boor does so immediately, and is therefore liable at any moment to the ravages of many kinds of confusion and doubt. The philosopher does not do so till unity has been reached, and is therefore warranted against the inroads of *those* considerations—but only practically not essentially secure from the blighting breath of the *ultimate* "Why?" Positivism takes a middle ground, and with a certain consciousness of the beyond abruptly refuses by an inhibitory action of the will to think any further, stamps the ground and says "Physics, I espouse thee! for better or worse, be thou my absolute!"

The Absolute is what has not yet been transcended, criticised or made relative. So far from being something quintessential and unattainable as is so often pretended, it is practically the most familiar thing in life. Every thought is absolute to us at the moment of conceiving it or acting upon it. It only becomes relative in the light of further reflection. This may make it flicker and grow pale—the notion of nonentity may blow in from the infinite and extinguish the theoretic rationality of a universal datum. As regards this latter, absoluteness and rationality are in fact convertible terms. And the chief effort of the rationalising philosopher must be to gain an absoluteness for his datum which shall be *stable* in the maximum degree, or as far as possible removed from exposure to those further considerations by which we saw that the vulgar *Weltanschauung* may so promptly be upset. I shall henceforward call the further considerations which may supervene and make relative or derationalise a mass of thought, the *reductive* of that thought. The reductive of absolute being is thus nonentity, or the notion of an *aliter possibile* which it involves. The reductive of an absolute physics is the thought that all material facts are representations in a mind. The reductive of absolute time, space, causality, atoms, &c., are the so-called antinomies which arise as soon as we think fully out the thoughts we have begun. The reductive of absolute knowledge is the constant potentiality of doubt, the notion that the next thought may always correct the present one —resulting in the notion that a noumenal world is there mocking the one we think we know. Whatever we think, some reductive seems in strict theoretic legitimacy always imminently hovering over our thought ready to blight it. Doubleness dismissed at the front door re-enters in the rear and spoils the rationality of the simple datum we flattered ourselves we had attained. Theoretically the task of the philosopher, if he cannot reconcile the datum with the reductive by the way of identification *à la* Hegel, is to exorcise the reductive so that the datum may hold up its head again and know no fear. Prof. Bain would no doubt say that nonentity was a pseud-idea not derived from experience and therefore meaningless, and so exorcise that reductive.[1] The antinomies may be exorcised by the distinction between potentiality and actuality.[2] The ordinary half educated materialist comforts himself against idealists by the notion that, after all, thought is such an obscure mystical form of existence that it is almost as bad as no existence at all, and need not be seriously taken into account by a sensible man.

If nothing else could be conceived than thoughts or fancies, these would be credited with the maximum of reality. Their reductive is the belief in an objective reality of which they are but copies. When this belief takes the form of the affirmation of a noumenal world contrasted with all possible thought, and therefore playing no other part than that of reductive pure and simple,—to discover the formula of exorcism becomes, and has been recognised ever since Kant to be, one of the principal tasks of philosophy rationally understood.

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[1] The author of *A Candid Examination of Theism* (Trübner, 1878) exorcises Nonentity by the notion of the all-excluding infinitude of Existence, —whether reasonably or not I refrain from deciding. The last chapter of this work (published a year after the present text was written), is on "the final Mystery of Things," and impresses in striking language much that I have said.

[2] See Renouvier : *Premier Essai.*

The reductive used by nominalists to discredit the self-identity of the same attribute in different phenomena is the notion of a still higher degree of identity. We easily exorcise this reductive by challenging them to show what the higher degree of sameness can possibly contain which is not already in the lower.

The notion of Nonentity is not only a reductive; it can assume upon occasion an exorcising function. If, for example, a man's ordinary mundane consciousness feels staggered at the improbability of an immaterial thinking-principle being the source of all things, Nonentity comes in and says, "Contrasted with me, (that is, considered simply as *existent*) one principle is as probable as another". If the same mundane consciousness recoils at the notion of providence towards individuals or individual immortality as involving, the one too infinite a subdivision of the divine attention, the other a too infinite accumulation of population in the heavens, Nonentity says, "As compared with me all quantities are one: the wonder is all there when God has found it worth His while to guard or save a single soul".

But if the philosopher fails to find a satisfactory formula of exorcism for his datum, the only thing he can do is to "blink" the reductive at a certain point, assume the Given as his necessary ultimate, and proceed to a life whether of contemplation or of action based on that. There is no doubt that this half wilful act of arrest, this acting on an opaque necessity, is accompanied by a certain pleasure. See the reverence of Carlyle for brute fact: "There is an infinite significance in Fact." "Necessity," says a German philosopher,[1] and he means not rational but simply given necessity, "is the last and highest point that we can reach in a rational conception of the world. . . . It is not only the interest of ultimate and definitive knowledge, but also that of the feelings, to find a last repose and an ideal equilibrium, in an uttermost datum which can simply not be other than it is."

Such is the attitude of ordinary men in their theism, God's fiat being in physics and morals such an uttermost datum. Such also is the attitude of all hard-minded analysts and *Verstandesmenschen*. Renouvier and Hodgson, the two foremost contemporary philosophers, promptly say that of experience as a whole no account can be given, but do not seek to soften the abruptness of the confession or reconcile us with our impotence.

Such mediating attempts may be made by more mystical minds. The peace of rationality may be sought through ecstacy when logic fails. To religious persons of every shade of doctrine moments come when the world as it is seems so divinely orderly, and the acceptance of it by the heart so rapturously complete, that intellectual questions vanish, nay the intellect itself is hushed to sleep—as Wordsworth says, "Thought is not, in enjoyment it expires". Ontological emotion so fills the soul that ontological speculation can no longer overlap it and put her girdle of interrogation-marks around existence. Even the least religious of men must have felt with our national ontologic poet, Walt Whitman, when loafing on the grass on some transparent summer morning, that "Swiftly arose and spread over him the peace and knowledge that pass all the argument of the earth". At such moments of energetic living we feel as if there were something diseased and contemptible, yea vile, in theoretic grubbing and brooding. To feel "I *am* the truth" is to abolish the opposition between knowing and being.

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[1] Dühring: *Cursus der Philosophie*, Leipzig 1875, p. 35.

Since the heart can thus wall out the ultimate irrationality which the head ascertains, the erection of its procedure into a systematised method would be a philosophic achievement of first-rate importance. As used by mystics hitherto it has lacked universality, being available for few persons and at few times, and even in these being apt to be followed by fits of "reaction" and "dryness"; but it may nevertheless be the forerunner of what will ultimately prove a true method. If all men could permanently say with Jacobi, "In my heart there is light," though they should for ever fail to give an articulate account of it, existence would really be rationalised.[1]

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[1] A curious recent contribution to the construction of a universal mystical method is contained in the *Anæsthetic Revelation* by Benj. P. Blood (Amsterdam, N.Y., 1874). The author, who is a writer abounding in verbal felicities, thinks we may all grasp the secret of Being if we only intoxicate ourselves often enough with laughing-gas. "There is in the instant of recall from the anæsthetic stupor a moment in which the genius of being is revealed. . . . Patients try to speak of it but invariably fail in a lost mood of introspection. . . . But most will accept this as the central point of the illumination that sanity is not the basic quality of intelligence, . . . but that only in sanity is formal or contrasting thought, while the naked life is realised outside of sanity altogether. It is the instant contrast of this tasteless water of souls with formal thought as we *come to* that leaves the patient in an astonishment that the awful mystery of life is at last but a homely and common thing. . . . To minds of sanguine imagination there will be a sadness in the tenor of the mystery, as if the key-note of the universe were low—for no poetry, no emotion known to the normal sanity of man, can furnish a hint of its primæval prestige, and its all-but appalling solemnity; but for such as have felt sadly the instability of temporal things there is a comfort of serenity and ancient peace; while for the resolved and imperious spirit there are majesty and supremacy unspeakable." The logical characteristic of this state is said to be "an apodal sufficiency—to which sufficiency a wonder or fear of why it is sufficient cannot pertain and could be attributed only as an impossible disease or lack. . . . The disease of Metaphysics vanishes in the fading of the question and not in the coming of an answer."

But if men should ever all agree that the mystical method is a subterfuge without logical pertinency, a plaster, but no cure, that the Hegelian method is fallacious, that the idea of Nonentity can therefore neither be exorcised nor identified, Empiricism will be the ultimate philosophy. Existence will be a brute Fact to which as a whole the emotion of ontologic wonder shall rightfully cleave, but remain eternally unsatisfied. This wonderfulness or mysteriousness will then be an essential attribute of the nature of things, and the exhibition and emphasising of it will always continue to be an ingredient in the philosophic industry of the race. Every generation will produce its Job, its Hamlet, its Faust or its Sartor Resartus.

With this we seem to have exhausted all the possibilities of purely theoretic rationality. But we saw at the outset that when subjectively considered rationality can only be defined as perfectly unimpeded mental function. Impediments which arise in the purely theoretic sphere might perhaps be avoided if the stream of mental action should leave that sphere betimes and pass into the practical. The structural unit of mind is in these days, deemed to be a triad, beginning with a sensible impression, ending with a motion, and having a feeling of greater or less length in the middle. Perhaps the whole difficulty of attaining theoretic rationality is due to the fact that the very quest violates the nature of our intelligence, and that a passage of the mental function into the third stage before the second has come to an end in the *cul de sac* of its contemplation, would revive the energy of motion and keep alive the sense of ease and freedom which is its psychic counterpart. We must therefore inquire what constitutes the feeling of rationality in its *practical* aspect; but that must be done at another time and in another place.

WM. JAMES.

NOTE.—This article is the first chapter of a psychological work on the motives which lead men to philosophise. It deals with the purely theoretic or logical impulse. Other chapters treat of practical and emotional motives and in the conclusion an attempt is made to use the motives as tests of the soundness of different philosophies.

III.—KUNO FISCHER ON ENGLISH PHILOSOPHY.

No one perhaps has written the history of Philosophy at once so agreeably, so fully and so instructively as Prof. Fischer. His style is clear and for German remarkably unembarrassed. Every paragraph has its topic, every sentence its own thought.

The most difficult meanings are always made plain: indeed, if there is any fault in this respect, it is that lucid exposition is so easy to Prof. Fischer that, "like wealthy men that care not how they give," he often falls into a redundancy of felicitous statements and restatements by his resolve that there shall be no misunderstanding. This prodigality, which increases the power of his incomparable lectures, detracts a little from the perfection of his writings; and it is even more conspicuous in his volume on English Philosophy than in his larger work on the Continental movement. But still more engaging than the style of these writings is their hearty appreciation of the efforts of every thinker, however far removed in doctrine from the author's own stand-point, so that he seems to become the advocate of any system he expounds, treating it as its originator might have wished to do. Nor can one help admiring Prof. Fischer's ingenuity in tracing the connexions between successive systems and schools: for example, the relationship between Cartesianism and French Materialism of the 18th century, treated in the ninth chapter of the third book of *Francis Bacon und seine Nachfolger;* or the movement from Descartes to Spinoza in the first volume of the *Geschichte der neuern Philosophie;* or, in the fifth volume of the latter work, the interval between Kant and Fichte. But perhaps one may occasionally observe a taint of artificiality in his determination of the courses of these streams of influence, or of the positions of these stepping-stones of thought. There is a strong temptation to discover that events of any kind, especially events of the spirit, happened in such an order as a well-regulated mind would have been pleased to witness them in. For my own part, too, I should like to see a less strict adherence to Bacon's advice to intermix literary history but sparingly with criticism; or if it be admitted that the actual intermixture of exposition with criticism is bad, there should yet be found somewhere a place for criticism, either in notes, or in appendices to the several chapters. Criticism increases the interest and even the intelligibility of the narrative, and still more its value as a discipline and as a stimulus to thought.

Scanty as are the criticisms contained in the work on English Philosophy,[1] it is on them that this article must chiefly dwell. It may be assumed that readers of MIND are not unacquainted with the book's general nature and value. The first edition has long been translated, and it is much to be desired that the second edition of 1875, which is more than twice the bulk of the former one, should also find a translator. As the title of the work imports, its author regards Bacon as the principal figure in the history of the Experience-philosophy, his successors as for the most part only continuing and developing his doctrines. Thus nearly two-thirds of the whole work are given to him. The first book contains an account of his life; the second, the most extensive, thorough, and systematic exposition of his doctrine that anywhere exists.

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[1] *Francis Bacon und seine Nachfolger: Entwickelungsgeschichte der Erfahrungsphilosophie.* 2te völlig umgearbeitete Auflage. Leipzig: Brockhaus, 1875.

The excellence of Prof. Fischer's treatment appears at the outset. Bacon is misunderstood, he says, because critics suppose that a coherent thinker must be systematic; they do not find Bacon systematic, and so fail to perceive his coherence. Yet this quality becomes manifest, if we observe that whilst most philosophers are, like Descartes, synthetic thinkers, beginning with general principles and following them to their consequences, Bacon begins not with a principle, but with an end: and that accordingly his procedure is analytic, a search for the means of attaining that end. Hence "his philosophy is no system but a method or pathway". The end is the increase of human well-being and power; power is to be got by inventions, inventions by science, science by experience, and experience must be directed by a method. It is in this sense that Bacon is the philosopher of experience; not that he took experience for his principle, but that he saw in it the necessary means to his supreme end. And thus we may understand the relationship between the *Novum Organum* and the *De Augmentis*: the former treats of the means of making discoveries in science; the latter, as a preparation for this, takes stock of the knowledge we already have, notices the gaps in it, and endeavours by tracing the affinities of the sciences to promote that interaction amongst them upon which their common progress depends.

But I must not linger over the expository portion of the work, however tempting its excellencies; nor can one pretend that it is perfect. It would, for instance, have been advantageous to compare Bacon's teaching with what has since been done to develop the theory of Induction. There is no worse practice of critics than to conclude from an author's not happening to display acquaintance with a subject, that therefore he is of course ignorant of it, and I by no means bring such an accusation against Prof. Fischer. But certainly his work leaves many dark spots in Bacon's doctrines which the light of recent speculations should have illumined. Thus, in expounding Bacon's method of comparing instances in his first table, Prof. Fischer, after stating that we have first to assemble a number of instances agreeing in the presence of the phenomenon whose form is to be investigated, goes on to say that, if these numerous cases agree in some of their conditions but not in others, we may safely regard the latter as unessential and not pertaining to the subject of investigation (p. 183); and he expresses no disapproval of this position, though if we admit that an effect may have different causes, it is plainly a bad one. Again, when expressly enumerating Bacon's faults, Prof. Fischer does not mention his ignorance of the use of hypotheses; nor the fatal indefiniteness in his meaning of the word *form.* Nor in the otherwise admirable sections on Prerogative Instances does he explain the nature of true prerogative instances, namely, their fitness for direct and easy subsumption under the law of Causation; and accordingly, in describing Solitary Instances, he does not remark the anticipation of the canons of Agreement and Difference. Yet some sound remarks upon such points would have greatly added to the instructiveness of his pages; so that on the whole one is not surprised to find that he considers a true Logic of Induction still wanting ("a work," he says, "which cannot be accomplished without a true theory of our sensations and the consequent critique of our faculties of sense-perception"), and that Bacon has done more toward it and illustrated it better than any one else before or since.

The most serious shortcomings which Prof. Fischer finds in Bacon are (1) his having trusted sense-perception without criticising it, (2) his failure to rightly appreciate poetry and fine art, (3) his attitude toward history and whatever depends upon a true historical method, as for instance mythology and religion. Much might perhaps be urged in extenuation even of the first and second of these charges; but I prefer to join issue on the third, because it is brought against not only Bacon but all his school. According to our author (p. 457), the modern Realistic Philosophy was from the outset averse to religion, and in Bacon's successors became positively hostile to it, because they were incapable of thinking historically. From which we might infer that Locke and Berkeley were hostile to religion, and that Hume and Adam Smith were incapable of understanding history.[1] Historical explanation Prof. Fischer would have us believe is wholly the fruit of the German Illumination. He distinguishes between the narration and the explanation of history (p. 468). To narrate history one has only to discover the facts and state them; and the discovery of facts in whatever department can only be prosecuted by the Baconian method. But to explain those facts is, it seems, quite another problem, to which that method is not equal.

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[1] Hume's distaste for the more serious phases of religion was certainly connected with some of the worst blemishes of his History. But it is clear that in this case inaptitude for historical study was not the cause but the effect.

One wonders why not: to explain facts is to find their likeness to others and the causes from which they sprang. These causes are previous facts; and the relations of likeness and causation amongst all these facts are also facts. So that if facts can only be discovered by the Baconian method, it might be supposed that only by that method can they be explained. True, Prof. Fischer would perhaps reply; if the facts of history were all of them to be sought in nature, the Baconian method could both discover and explain them. But they are not: the causes of history lie in the spirit, and Bacon declares that the things of the spirit cannot be known by his method. But Prof. Fischer is aware that Bacon elsewhere declares his method to be as applicable to ethics and politics as to natural philosophy: and ethics and politics are things of the spirit. Here then is an appearance of contradiction, which I propose to avoid by understanding Bacon to mean that his method can discover nothing as to the substance and immortality of the spirit, with such other questions as might have been claimed by the king and his theologians, with whom he wished to live at peace; but that it is quite equal to the investigation of spiritual phenomena and their processes. It is these phenomena and their laws—spiritual facts—that interest us in ethics and politics; and surely it is in such facts that we must seek the causes of history, so far as history depends upon the spirit.

Until then some one produces an historical event which needs for its explanation some dogma about spiritual substance or what-not, we may conclude that history, like everything else in the concrete world, is to be explained by the inductive method. Bacon himself, to be sure, was not happy at interpreting the more subtle historical phenomena. One may smile at his interpretations of myths, though consciously incompetent to furnish in a lifetime as much wit as clothes the poorest of those exercises. But the cause of failure was not the inadequacy of inductive method, as we now have ample proof; but that Time, the mother of Truth, was not yet travailing with this particular birth.

I cannot help noticing another ground of objection which seems equally sandy. Bacon's method, says Prof. Fischer, depends entirely upon the understanding and sense-perception, quite rejecting the aid of imagination: "But how can that which imagination makes [*e.g.*, poetry and art] be explained without imagination"? (p. 467). This, however, takes Bacon's crude division of mental faculties much too seriously. Imagination and understanding do not differ in their contents, I mean, in the ideas of which they consist—nor necessarily in the order of those ideas, but in the way in which ideas are believed to correspond, or not, with other ideas or with facts. A train of representations may at first be imaginative, if repeated an affair of memory; and if, having been forgotten, it is inferentially reconstructed, it becomes a product of understanding. Prof. Tyndall has told us how exact science is aided by imagination: and on the other hand poetry and art may be understood. An unimaginative man indeed cannot understand them, but that is because he lacks the appropriate experience. That Bacon was unimaginative will be maintained, I presume, by no one who is not driven to prop up a bad theory with worse facts.

The third book of Prof. Fischer's work treats of Bacon's successors. No one is so determined as the author to show that all subsequent English philosophers were merely disciples and interpreters of Bacon. And this is a case in which, I grant, the evidence can only be appreciated by the imagination. Is it too much to say, that the traces of Bacon's influence in the works of his successors are so slight, that even a critic who had formed a low estimate of his importance, might well be surprised to find no more? This, however, is how Prof. Fischer predetermines the development of the Experience-philosophy. There are five stages: (1) According to Bacon knowledge is experience, and the experiential or natural sciences are the foundations of all sciences: this position is Naturalism, represented by Hobbes. (2) The question arises, What are the conditions of experience? and the answer, sense-perception, marks the Sensualism of Locke. But now what is perception? Either spiritual impressions, which gives (3) the Idealism of Berkeley; or corporeal impressions, which gives (4) the Materialism of the French Illumination. Lastly, since from impressions of any sort there can result no objective, necessary, actual cognition, we have (5) the Scepticism of Hume.

No reasonable man would complain loudly of this suggestive outline, as long as it was not too rigorously pressed. But when Prof. Fischer says the sequence is, in fact, so simple, it could not have been otherwise (p. 512), one cannot help remembering what the facts really were; and then the artificiality of the arrangement becomes obvious. The impropriety of calling Locke's philosophy Sensualism, or Sensationalism, has often been insisted on, and I shall presently revert to it. The word Naturalism[1] is curiously misapplied to Hobbes's system, the most characteristic portion of which, the Politics, postulates the abrogation of Nature. Was it so called to avoid calling it Materialism, and thereby to preserve history from an illogical repetition? For Materialism, instead of waiting, as no doubt it should have done, for the fourth place in this series, fell on its first appearance into the first place, and then, perversely delaying its second appearance until after Hume, plumped down into the fifth. Just like its clumsy *Geistlosigkeit!* But, says Prof. Fischer, "never has a *post hoc* been so little a *propter hoc* as in this advent of French Materialism *after* Hume. French philosophy of the last century, coming as it does, in chronological order, subsequently to the English, looks like a thing belated." (p. 663). The same might be said of much other philosophising of the past and present centuries.

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[1] Perhaps the best use of *Naturalism* is as a name for the philosophy of emancipated Positivists—I mean, those whom Comte has helped to enfranchise, as distinguished from those whom he has enslaved. The name is useful because of its twofold opposition, to Supernaturalism on the one hand, and on the other hand to Artificialism, such as that of Comte and Hobbes.

But even were events more obsequious to logic, there remains a wider objection to thus regarding the history of philosophy as entirely embodied in the chief philosophers: such treatment is too abstract, and falls needlessly short of the fulness of fact. Works like M. de Rémusat's *Philosophie en Angleterre* (reviewed in MIND XIII.), dealing for the most part with the less original and influential writers, are in this respect almost superior: they are at least a good preparation for a better treatment, because they assist us in estimating the contents of common sense. Philosophy and the sciences must have arisen in the first instance out of the menstruum of common sense, must have been slowly differentiated from the public stock of less definite traditions and beliefs. The sciences, growing more and more certain and definite and making for themselves special spheres, have gradually (except some of the more backward) escaped from the influence of common sense; but philosophy is still to a great extent under its control. For, having a more general and vague subject-matter, and discussing problems which perhaps cannot be dogmatically solved and about whose solution there has never been much agreement, philosophers have seldom felt quite sure that they had discovered much truth, whilst the uninstructed have never hesitated to assure them that they had invented incredible absurdities. The few, doubtful, divided, docile and sympathetic, cannot with constancy withstand the many, confident and impenetrable. And accordingly the history of philosophy can only be rightly understood in relation to common sense, and should be written with a full consciousness of its connexion with that vast body of public belief, by which, like a stream flowing through a marsh, it is continually fed and continually obstructed.

Historians of philosophy, however, too often content themselves with relating the intellectual combats and adventures of a thin series of thinkers, or exceptionally describe them as obscurely influenced by climate, soil, race, and other circumstances of the remoter environment. Neither course is adequate, nor is a combination of them. Climates may have helped to diversify the cast of thought of nations so widely separated as the Greeks and Hindoos, but cannot account for a difference between the philosophies of Germany and England. National genius perhaps stands for something, though it is hard to say what; and we cannot cite as explanatory a fact which itself desiderates explanation. But it is in nearer conditions that we must seek the origin of any particular school or system; and probably these conditions may be best summed up under the heads of antecedent philosophy and common sense. Whoever has been led by reflection to anything like a system of opinions will consider for himself whether these are not its proximate sources.

In common sense I include an element which in many respects resembles philosophy, and might with much propriety be considered as a system or school of systems of philosophy; though whether it has arisen in like manner by a process of differentiation out of the general body of common sense (as it is certainly alike influenced by it), or has been otherwise formed, we need not here inquire;—I mean theology. Modern philosophy is distinguished from the ancient hardly less by the fact of having grown in the presence of a scientific theology than by the advantage of having ancient philosophy behind it. All the chief controversies about substance, cause, the origin of knowledge, are inflamed and aggravated by the impregnation of this contact. Theology is the earliest philosophy of nearly every thinker; and without denying the possibility of his afterwards approaching all questions quite unprejudiced by his first lessons, we may be sure that such impartiality is rare, and we ought not to countenance the fiction that it is the rule. Toward theology almost everyone's mind must be either favourably or unfavourably disposed. As long as theological doctrines seem best to explain the facts of the physical, still more of the moral world, there will be (to use a Kantian phrase) an interest of reason in their favour. If ever there comes a time when the facts of the physical, still more of the moral world, seem more intelligible from another point of view, the interest of reason must change sides. A fact so weighty, if it be a fact, should be candidly recognised; and the historian of philosophy should trace explicitly the connexions of each system, not only with its predecessors, but also with the common sense of its age, and especially with theology. The work that seems to me to fulfil best these requirements is Maurice's *Moral and Metaphysical Philosophy*.

Prof. Fischer's account of Hobbes is impartial and good, though somewhat disproportionately short. Much more space is given to Locke; and probably many readers would learn more from these lucid pages than by a first perusal of the original works: for Locke, easy as he seems, is really a very difficult author; and the *Essay on Human Understanding,* in particular, resembles the English language, in as much as it is easy to get a smattering of, but hard to know thoroughly. Prof. Fischer's exposition of Locke is however marred by the support he gives to an objection often urged against the great experientialist's doctrine, and which one is rather surprised to meet with in so able a work as this, namely, that in strictness the two sources assigned to experience, Sensation and Reflection, are reducible to Sensation.

As Prof. Fischer somewhere observes, "jeder Dualismus strebt nach Einheit,"—every Dualism seeks to merge in Unity: in other words, the philosophic mind is strongly disposed to generalise to the utmost. But this high instinct, the creator of science and philosophy, is apt, like instincts of meaner kind, to outrun discretion; and if it has stimulated us to the discovery of a vast deal of truth, it has at the same time impelled us to construct unnumbered propositions, which wear a vain appearance of knowledge where there is not, and cannot be, the reality. Hence Prof. Bain classes it amongst the fallacious tendencies of human nature; and I fear its tendency is realised in error whenever anyone is tempted to reduce Locke's psychological dualism to unity under the name of Sensation.

It appears that the distinction which Locke wished to establish between Sensation and Reflection may be best understood as that which, in the more precise language of recent psychology, is drawn between the objective and subjective orders of feelings; and this certainly is a distinction which, under the present conditions of human consciousness, cannot be obliterated. If we accept the hypothesis that the objective and subjective orders of feelings have been slowly differentiated out of more primitive states of consciousness which were neither; and if we make the vain attempt to realise what those earlier states were like; we may perhaps be led to surmise that on account of their dimness and indefiniteness they were more nearly akin to the subjective than to the objective order: in which case it seems to be the lesser absurdity to regard Sensation as reducible to Reflection. But we must not forget that this is a merely hypothetical condition of things, and one that cannot be verified. That supposed primitive state of mind is to experientialists what intellectual intuition has been to certain transcendentalists, and what ecstasy was to the Neo-Platonists; a consummation devoutly to be wished, but which no one believes ever to have been attained. We may be sure that an Englishman, however delicately he balance his body and muffle his senses, to shut out the pressures and greetings of the object, never succeeds in swooning back into that paradise where blissful cuttle-fish presumably dwell, but whence he has been harshly driven into an outer region of complex relativity and distinct consciousness. Locke's doctrine, therefore, that Sensation and Reflection are co-ordinate factors in human consciousness remains true. All known consciousness involves comparison; Sensations and Ideas of Reflection cannot be known as such, except in contrast with one another. And if, on the one hand, Ideas of Reflection invite us to derive them directly or indirectly from Sensations; on the other hand, there cannot be a sensation that is not distinguished from others, nor a definite sensation that is not classed with the ghosts of its own former indefinite excitations, and thus dependent upon Ideas of Reflection.

Prof. Fischer has a sound vindication of Berkeley's descent from Locke, as against the theory of his descent from Malebranche which some critics, misled by superficial similarities of doctrine, have maintained. It is to be regretted that Prof. Fischer's design of viewing the whole series of English philosophers as dependent on Bacon, seems to have precluded him from noticing Berkeley's later writings. As to the treatment of Hume, what occurs to me to say about it may be incorporated with the following remarks upon our author's animadversions upon the entire career and results of English Experientialism: animadversions which are necessary in order to secure a starting-place and open field for the German movement.

He urges in the first place that the experientialist principle, that all knowledge is derived from experience, too rigidly limits the scope of philosophy and from the outset excludes from our view any knowledge that may be only otherwise obtainable. This is a plausible objection, which must occur very naturally to an opponent of experientialism, and for which adherents of this doctrine, by the way in which they state and maintain it, sometimes furnish too good excuse. However, it proceeds upon a mistake as to the nature of the experientialist principle: which is best understood not as a fundamental dogma with which all other propositions must at any cost be squared, but rather as a scientific hypothesis which in the judgment of its supporters already explains so many facts, that it is reasonable to go on endeavouring to apply it to others until it is disproved. Such an hypothesis is always liable to be disproved by the discovery of negative instances, and is a perpetual challenge to produce them. Transcendentalists accept this challenge when they point out what in their judgment are necessary synthetic truths independent of experience, such as the axioms of mathematics. To which it is replied that these axioms are indeed amongst the most certain that we know; but that we do not know them to possess absolute certainty, and that, stripped of that factitious attribute, which now cleaves to them chiefly by the attraction of asseveration, they seem to be derived from experience.

By a similar defence Prof. Fischer's second dart is blunted. Experientialism, he says, unable to explain the possibility of necessary cognition, leads to Scepticism. To be sure, if it be Scepticism to doubt the possibility of absolutely necessary cognition. For all other general propositions pretending to truth must, of course, like its own constitutive principle, be regarded by Empiricism as scientific hypotheses, until they are disproved or proved to be necessary. They may be disproved by the discovery of negative instances. How they can be proved to be necessary is less clear: and to rest such proof upon the plainness with which they may be realised in an intuition, or upon a sense of their necessity or of the impossibility of imagining the contrary, or upon our recognition of them as conditions of nature as an object so far as our investigations have gone—looks like that attempt to establish an universal upon particular perceptions which Prof. Fischer says is the vain hope of Experientialism.

To doubt the possibility of necessary cognitions is not however the same thing as to doubt the possibility of actual and objective cognitions. Prof. Fischer uses the words *objectiv*, *nothwendig* and *wirklich* (p. 513-4), as if they were of course concomitant qualifications of knowledge; yet this is far from true. If Hume had lived to enjoy the greater precision of language which has been forced upon his followers by the disciples of Reid and Kant, he might (for example), whilst questioning the necessity of causation, have admitted its reality, in the sense that it constantly obtains in experience, and its objectivity, in the sense that it is the same to everybody. But it was his error, I may say his whim, to place the results of his philosophy in opposition to the beliefs of common sense. There is no true opposition between them; for those results contained the explanation of these beliefs. Berkeley in like case was far wiser, maintaining that his theory of matter really agreed with the belief of unsophisticated men; and Hume would have done well to follow his example. He would thus certainly not have escaped (any more than Berkeley), but he would at least not have invited, the reproach, which Prof. Fischer still thinks just, of having broken with common sense.

A last objection to the Experience-philosophy is that it assumes the possibility of experience, whereas this should have been explained, and accordingly Kant undertook to explain it. Moreover, in assuming the possibility of experience, the experiential philosophers assumed the existence of such elements of experience as substance and cause; which, having assumed, they solemnly proceeded to deduce. In his work on the Continental philosophy, our author repeats this accusation, which was first urged by Kant himself. And against Locke the charge is too nearly just; but to bring it against Hume implies a complete misconception. Observe the ambiguity of the word experience: it may mean (1) the full organic consciousness of an adult human being (this is what Kant means by *Erfahrung*); or (2) merely a series of feelings (which Kant called *sinnliche Eindrücke*).[1] It would have been a scientific procedure for Hume to try to deduce experience in the former from experience in the latter sense. Prof. Fischer and Kant imagine that he pretended to deduce the adult consciousness from the adult consciousness.

The merely sceptical aspect of Hume's philosophy, however interesting to himself, and an astonishing performance in its way, may now be regarded as literary colouring. The permanent scientific interest of his writings lies in the explanation they offer of the growth of consciousness, and the nature and formation of beliefs. As to Causation, for example, his position may be stated thus: Grant me a series of feelings in which similar sequences frequently recur, and certain laws of the association of feelings, and I will show you how a belief in necessary sequence or causation will arise. Prof. Fischer seems to think that in such *data*, "the whole of Experience and Causality" (p. 786) are already implied. But where? Is it in the series of feelings and their recurrent sequences? Hardly: for we know as a matter of fact that, in a series, similar sequences sometimes recur by chance, that is, apart from circumstances which are recognised as causal; and it is supposable, that the world is so vast that even all the sequences which we class as causal are really accidental conjunctures. Does necessity, then, lurk in the Laws of Association? Equally not: for those laws state that feelings which have occurred together, or are alike, do recur together, but not that they must do so. Hume's data therefore, taken severally, do not imply necessary Causation; nor do I believe they can be shown to imply it if taken together. But if not, his problem remains legitimate, namely, to show how by the recurrence of sequences, possibly fortuitous, there may be generated a sense of their necessity.

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[1] *Krit. d. r. V.* Einl. § 1.—Mr. S. H. Hodgson in his *Philosophy of Reflection*, notices Kant's difference from Hume as to the meaning of experience.

I cannot help noticing the way in which Prof. Fischer thinks that Kant improved on Hume. He intended, it seems, to explain Experience, as Bacon sought to explain Nature, that is, he investigated the precedent conditions out of which it arises. These conditions were not to be above experience, nor in it, but *before* it ("nicht über derselben, wie die deutschen Metaphysiker, nicht in ihr, wie die Englischen Sensualisten, sondern *vor* ihr," p. 786): and he found them in pure reason. May I not add—together with the manifold of sensation, or feelings? Pure reason, then, and perhaps feelings are conditions which precede experience. One wonders how! The manifold apart from experience, if it be possible, is out of Time, where there is no before or after. Pure reason, too, I suppose, must apart from experience (or during it for that matter) be also out of Time: how then can it precede experience? Is not this comparison between Kant and Bacon a little fanciful? The view which it suggests of Bacon's method is somewhat surprising in an exact writer; but in relation to Kant it is far more strange. Surely, by conditions *à priori* Kant meant not *prior to*, but merely *not derived from* experience.[1]

Kant's analysis of experience, far from being an improvement upon Hume's, was of a more antiquated kind. It resulted in (1) pure reason, containing the most abstract forms of intuition and thought, (2) feelings. Both Hume and Kant postulated feelings. These granted, with the laws of association, Hume undertook to derive from them the most abstract forms of judgment. But Kant wanted to be given both. Now if we remember that pure reason is not appropriate to an individual mind (though a reader of Kant or Fichte is liable to think so), and if we consider how difficult it is to attach personality of any sort to such an abstraction, it becomes little else than a place of forms or ideas, very similar to Plato's intelligible world. The manifold of sensation, or feelings, corresponds to Plato's matter. With Kant, as with Plato, a union of the forms with the material is needed to constitute experience, or nature. In both cases it is impossible to see how the union is to take place; a Demiurgus is needed; and Kant introduces, by way of Demiurgus, the minds of individual men. These apprehend the manifold, imagine, associate, recognise, judge, and so on. Such at least seems to be the view which breaks least with common sense; but perhaps the whole clumsy machinery is meant to be worked by the self-activity of pure reason. To me these agencies are about equally intelligible. How to do without either, is the metaphysical problem which has confronted us since the days of Hume.

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[1] Thus in the section referred to in the previous note he says: "Ob es ein dergleichen von der Erfahrung und selbst von allen Eindrücken der Sinne unabhängiges Erkenntniss gebe? Man nennt solche Erkenntnisse *à priori*" &c.

With Hume Prof. Fischer's history of English philosophy ends; and perhaps, like many another observer, he opines that there the thing itself ended; or that, if not, it ought to have done so. But this may be another instance of the illogical perversity of facts. Certainly much philosophy has been written in England since Hume, and it is a very interesting inquiry (which of course at the end of an article I can only raise) whether any important advance has been made upon his doctrines.

Not reckoning special improvements effected in the 'moral sciences,' within which English thought is so apt to straiten itself, we may perhaps claim to have made two advances of the utmost consequence: (1) the analysis of Space and Time in reply to Kant's Transcendental Æsthetic; or if this be too special for particular mention, there is at any-rate (2) the theory of Evolution with its corollary of inherited experience. The second step is a long one, and places us upon an eminence from which we are able to see not only fuller interpretations of many psychological and metaphysical problems, but also to discover the deepest and most secret idea of English philosophy.

The conception which that philosophy has worked toward with ever increasing clearness of vision, is that human consciousness, however ancient its origin, is a natural growth. To demonstrate the naturalness of the mind was an essential step to the justification of positive law, to social science, and to a coherent view of the world. After a crude and premature introduction by Hobbes, this conception was half-unconsciously advanced by Locke under the special form of a denial of innate ideas. Innate ideas were by those who believed in them prized as witnesses to the soul's supernatural descent; and in disputing their existence Locke dealt at the doctrines they were in harmony with a much heavier blow than he intended. To him, no doubt, it merely seemed that the greater part of our genuine knowledge plainly originated in particular experiences; this therefore he took to be the natural and universal mode of acquisition, and endeavoured to prove it to be so by a detailed examination of the mind's contents. But, if so, innate ideas were superfluous, and for this amongst other reasons to be rejected. Whether an individual's consciousness is conditioned by any sort of mental antecedents other than innate ideas, be they perhaps still resolvable into particular experiences, ancestral actions and feelings, he of course did not inquire. His work was to make a preliminary classification and analysis of mental phenomena, and to suggest the fruitful hypothesis that the more abstract and complex of these had arisen from the particular and simple. This was sound method. The detailed elaboration of his scheme exhibited the shortcomings of an initiative essay. The analysis, after a step or two, everywhere halted upon the road. Many highly complex perceptions appeared to him comparatively simple, and were treated much too superficially: instance Space and Cause, which in the guise of Extension and Power he held to be directly gathered from experience, thus (as it has been objected) assuming the very thing to be explained. The synthesis was still more defective. Locke omitted to find, even for the complex states of mind which he recognised, any intelligible process by which they might have been produced. He speaks of the mind "putting together" simple ideas, "compounding" them, "separating" them, "making haste to get" abstract ideas, and so on. The mind that had to do all this might as well have been allowed some innate principles for guidance. But the true process of association he observed only in some abnormal cases.

The problems left to his successors may be roughly grouped as follows: (1) To complete the classification of mental phenomena, and prosecute the analysis of those complex perceptions which he had treated as simple, or had inadequately investigated. Locke's discussion of the emotions had been conspicuously feeble; one could hardly gather from it that any passion was more voluminous than a bad flavour; and this topic was not very successfully enlarged upon in a systematic manner until the present century. A great example of the analysis of complex perceptions was immediately given by Berkeley in his *Theory of Vision*. Hume, however, did little or nothing to support the advance in this direction. And it was not until after Kant had raised the metempirics of intuition (if I may so express it) into one of the principal stumbling-blocks of philosophy, that the efforts of English thinkers to clear it away resulted in those analyses of the perceptions of Space and Time which I have mentioned as amongst the most conspicuous of their recent triumphs.

(2) To disabuse men's minds of certain fictions of the same class as innate ideas, but whose unreality Locke had failed to discover. Here Berkeley again proved equal to the task before him, despatching quickly abstract ideas and matter as a thing-by-itself. Hume followed this time in great force, completing the critique of Substance, and adding his critique of Causation. He thus fully accomplished the demolition of what may be called the metempirics of judgment, and left in this department little for his successors, except the duty of careful restatement

according to their progress in psychological knowledge and precision of language.

(3) To determine and illustrate the laws in accordance with which the mind grows and works. This problem Berkeley overlooked; though without some solution of it none of his results could be quite satisfactory. It became, however, the great achievement of Hume; who revived the Laws of Association, which had been strangely neglected since Hobbes; and applied them with far greater subtlety and penetration to the explanation of human nature. How Hume's work in this field, supplemented by Hartley's, has been continued by an unbroken series of philosophers into our own day, is well known. And upon the faithful pursuit of the same methods English Experientialism must depend for the means of completely illustrating the naturalness of mental phenomena.

The theory of Evolution, if it has not by itself, as applied to Psychology, solved any first-rate problem (not having occasion), has greatly contributed to the solution of very many, and seems to me to have immensely confirmed previous results. By extending the period of time during which the association of feelings has been proceeding, it enables us the more readily to understand the tenacity of inseparable growths, and the approaches that have been made toward perfection in the correspondence between the subjective and objective orders. The variety of feelings, the consolidation of emotions, the definiteness of intuitions, the precision of inferences, and even the persistence of metempirical illusions and attitudes of thought, are alike rendered more intelligible, and their gradually accumulative origin more credible, by the antiquity of ancestral experience. The theory of evolution has also given a powerful incentive to the naturalistic interpretation of the mind, by furnishing a clue to the agreements and differences which exist between the minds of men of various races, and between the minds of men and of lower animals. Suggestions toward a Comparative Psychology are indeed old enough. In the English school Hume is conspicuous for having encouraged it as much as might be in his day. And Locke frequently adverts to the faculties of animals, observing that they perceive and remember, but compare only imperfectly, and abstract not: balancing such reflections, however, on the other side with occasional excursions into the conjectural psychology of cherubim and seraphim.

On the whole we may conclude that, although English philosophy since Hume has no such startling movements, catastrophes and restorations to point to as may be naturally looked for by those who are accustomed to re-arch their own intellectual firmament every decade, it has nevertheless shown signs enough of living activity to warrant the notice of historians. Moreover, the impartiality which an historian desires to exercise seems at length, with regard to the recent period, to have become possible; inasmuch as its polemic was directed chiefly against Kant, and this may be considered as probably at an end. A yet more uncouth foe now shakes his dart over the island.

CARVETH READ.

IV.—ON THE POSITION OF FORMAL LOGIC.

WRITING nearly half a century ago in the *Edinburgh Review*, Sir William Hamilton deplored the combined perversion and neglect which Logic had experienced in this country for more than a hundred and fifty years. At the period at which he was writing, however, interest was being revived in the science, chiefly in consequence of the publication of Archbishop Whately's *Elements of Logic*, and since that time we have had a quick succession of works, written from various points of view, including Mansel's *Prolegomena Logica* and Hamilton's own *Lectures*, Mill's *System of Logic* and Whewell's *Novum Organum Renovatum*, Boole's *Laws of Thought* and De Morgan's *Formal Logic*, Venn's *Logic of Chance* and Jevons's *Principles of Science;* but it may still be doubted whether that branch which was distinctively revived by Whately, namely, Formal Logic, is yet satisfactorily established on an intelligible and independent basis. In Hamilton's own exposition it was in danger of being confused with Psychology, and, if that view be rejected, it tends to be overshadowed on the one hand by the material logic of Mill and his school, and on the other hand by the elaborate and ingenious developments on a semi-algebraic basis of Boole, Jevons and others. There is moreover a current danger of its proper nature being lost sight of in an apparently superficial attempt to reconcile opposing theories; for example, in Jevons's and Fowler's deservedly popular text-books. The former says, in answer to the question whether logic is concerned with language, thought or objects, that it treats in a certain sense of all three, an answer which is scarcely permissible unless we go on at once to distinguish the different parts of the science in which it deals with each respectively; and the latter begins with a definition that would satisfy Hamilton, but follows almost entirely on the line of Mill. We cannot rest satisfied with this way of shirking difficulties, though it may perhaps introduce a greater seeming simplicity into an elementary treatise.

In a particularly interesting and useful essay published in the first number of MIND, Mr. Venn gives a brief summary of the different views as to the nature and province of Logic. "Everyone," he says, "will admit that a proposition is a statement in words of a judgment about things"; and here we have three sides of the proposition, any one of which may be dwelt on to the exclusion of the others. We may select for special attention, first, the *words* in which the proposition is expressed; secondly, the *judgment* of which it is the expression; or, thirdly, the reference to *things* which is contained in it. The same may equally be said of terms and arguments; and "hence we should apparently be led to three alternative views as to the general nature of logic. One of these views, however,—namely, that which lays the stress on the words in which the judgment is couched,—need hardly be discussed. It has indeed been maintained by Whately that logic is concerned with language, and with language only. But he does not adhere to this limitation, as indeed no clear thinker could, for the secondary and dependent nature of language as being a medium of thought, or having reference to facts, is far too prominent to be disregarded. Hence it follows that supporters of this view are under such powerful attraction to one or other of the remaining two, that for all practicable purposes we need not take any but these into account." So far as Formal Logic, however, is concerned, there is still another alternative, and in a discussion as to the province of logic we shall not get far unless, to commence with, we treat the formal and material aspects of the science separately. The attempt to deal with them in too close connexion is partially accountable for the anomalous position of formal logic in some works on the science; while it also tends to put in an exaggerated form the real divergence between different schools of logicians. The view that even formal logic is concerned with language pure and simple is undoubtedly open to the objection that Mr. Venn urges. But the same cannot be said if we take language in its distinctive character as the instrument of thought; and I shall try to show that formal logic may be established on this basis without losing its recognised character: whilst if, on the one hand, it is treated as Hamilton and Mansel treat it, it cannot be adequately marked off from psychology, and if, on the other hand, the whole science is to concern itself with *things*, the formal side of it cannot but remain in an anomalous and undefined position.

Whately and De Morgan are leading examples of logicians who have given prominence to the connexion between logic and language; but these writers either entirely slurred over its subjective aspect, or referred to it in a crude and apparently inconsistent way. Hamilton's strictures on Whately for having said that "Logic is entirely conversant about Language" are well known; and it is also generally recognised that they are not fully justified. The statement here quoted must always be taken in connexion with another statement of the same writer, namely, that Language of some kind or other is an indispensable instrument of all Reasoning that properly deserves the name. This is the connecting link between Whately's two positions that logic is concerned with the process of reasoning and also with language. Reasoning and language considered respectively as the subject-matter of logic are not in his view opposed to each other; logic deals with the latter just *because* it deals with the former. At the same time there can be no doubt that Whately did not sufficiently bring out the connexion in his writings, even if he ever fully realised it to himself.

De Morgan again is sometimes very explicit:—"Formal logic," he says, "deals with *names* and not with either the *ideas* or *things* to which these names belong"; and again, "Names are exclusively the objects of formal logic". But this is certainly going too far; if De Morgan had fully adopted this view in his own treatise, he would have produced not a Logic at all, but a Grammar. Elsewhere, however, he gives a far better statement:—"Logic is that branch of inquiry in which the act of the mind in reasoning is considered particularly with reference to the connexion of thought and language"; and he also says that the purpose of his *Formal Logic* is "the examination of some of the manifestations of thinking power in their relation to the language in which they are expressed". But he gives no adequate account of what he means by "thought". For our present purpose it is desirable to limit this term to the operation of what Hamilton calls the elaborate or comparative faculty, the faculty of apprehending relations. With regard to his practice, De Morgan does constantly tend to subordinate the purely *mental* side of logic: for example, in discussing the Import of Propositions, he lays down the position that so far as formal logic is concerned we are dealing with symbols, and it does not matter whether we consider them to represent things, thoughts or words. But although in formal logic we may to a large extent leave the ultimate reference to the objective world out of account, we cannot do the same with the mental reference. Language is a symbolism indeed, but a thought-symbolism, and it is this fact alone that can give it any logical significance.

The view that language is in any sense the subject-matter of formal logic must be based on the two following propositions:— First, Thought, at least in any of its higher manifestations, requires the aid of language (using the term "language" to mean a system of signs of any kind). This is admitted by logicians who take an extreme conceptualist view of the science. "Language," says Mansel, "taking the word in its widest sense, is indispensable not merely to the communication but to the formation of thought." Hamilton indeed speaks of such a conception of logic as that to which I am referring as involving "a psychological hypothesis in regard to the absolute dependence of the mental faculties on language, once and again refuted"; but in his *Lectures* he remarks, in speaking of the Formation of Concepts, that the concept "would fall back into the confusion and infinitude from which it has been called out, were it not rendered permanent for consciousness by being fixed and ratified in a verbal sign. Considered in general, thought and language are reciprocally dependent." Whether or not reconcilable with the statement previously quoted, this admission is all and more than all that I require for my present purpose.

The second proposition is that as Thought becomes complicated, and reaches its higher forms, it also becomes more and more symbolical, that is, we use language without consciously and fully thinking out each step; and in this symbolical use of language, we are liable to commit errors and omissions of various kinds. This proposition also is one that could abundantly be illustrated from the writings of conceptualist logicians.

These propositions lead to the conclusion that a practical science is required to treat of language (and from the nature of the case we must now confine ourselves to verbal language), distinctively in its relation to thought; and to establish principles according to which the relations of names and propositions may really correspond to actual relations of concepts and judgments. This practical science will coincide with what is usually treated as Formal Logic.

In illustrating this position we may start from the conceptualist view of Logic as expounded by Hamilton and Mansel. They define Logic as "the science of the laws of formal thinking," and the first question to be asked is what is here meant by "law". Hamilton gives an explicit answer:—"By *law of thought*, or by *logical necessity*, we do not mean a physical law, such as the law of gravitation, but a general precept, which we are able certainly to violate, but which if we do not obey, our whole process of thinking is suicidal or absolutely null". But this seems to land us in a dilemma. If we are not compelled to obey these laws, why, we at once ask, ought we to obey them? why will their violation render our whole process of thinking suicidal? The only answer that I can conceive is that otherwise our thought will not correspond with reality. If I am able subjectively to think this, that or the other as I please, the necessity of a correspondence with objective truth is the only ground on which I should feel myself called upon to exercise a preference. If, for instance, I were able to think that a thing could both be and not be at the same time, it would only be the observed fact that things did not both exist and not exist at the same time that would prevent my asserting them to do so. But if Hamilton admitted any such reference to objective conditions as is here involved, his whole conception of logic would at once fall away. Mansel does not explicitly expose himself to the same difficulty. "The phrase *necessary laws of thought*," he admits, "ought to imply that we cannot think at all except under their conditions." But even Mansel elsewhere speaks of these laws as "laws to which every sound thinker is bound to conform," and this ought to imply that we can escape conforming to them.

The considerations to which the inconsistency here referred to is due are not far to seek. If the Laws of Thought are necessary in the sense that we cannot disobey them, how are we to account for the fallacies that actually occur in formal reasoning? Thus Prof. Jevons remarks: "The Laws of Thought are often called necessary laws, *i.e.*, laws which cannot but be obeyed. Yet, as a matter of fact, who is there that does not often fail to obey them? They are laws which the mind ought to obey rather than what it always does obey."

Mansel's solution of the difficulty, which I should in the main accept, is that when we commit a logical fallacy we do not really *think* at all; the verbal combinations, involving the fallacy, are unaccompanied by clear and deliberate thought, and in extreme cases may even be described as verbal combinations wholly unaccompanied by thought. It would certainly be going too far to maintain that in so-called fallacious thought, thought proper is wholly absent; but we may more guardedly say that *in so far as* fallacy occurs thought is absent. We have seen that thought is necessarily assisted by signs of some kind; and when these signs are employed with a full and complete consciousness of all that they imply, we have what we may describe as clear and deliberate thought, and then fallacy is impossible. But in so far as our signs become *mere* signs, we may have the phenomenon of confused thought, perhaps involving logical fallacies: to take an extreme case, if in the course of an argument we were to pass from "All A is B" to "No B is A" we should have been manipulating symbols with almost entire unconsciousness of their proper implication. The phenomenon then of so-called fallacious thought is only possible because a symbolism is employed and without proper precautions. It would be going too far to say that it is always a *verbal* symbolism that is the source of error. On the grounds, however, that in the present stage of our development this is the most potent source of error, and that verbal signs are the only kind admitting of a systematic investigation, we confine ourselves to this case.

Mansel does not go out of his way to make even the above qualification, and he admits almost in so many words that at any rate so far as logic as an art is concerned we are dealing not with thought itself but with its expression. Now, how far is this consistent with his general view of the province of logic? He has formerly said that the conditions for the existence of logic as a science and as an art respectively are, first, that there exist certain mental laws to which every sound thinker is bound to conform; second, that it is possible to transgress those laws or to think unsoundly. But now we see that, strictly speaking, it is not possible to think unsoundly, *i.e.*, if we mean by thought a definite process of mind in which, if symbols are employed, it is only with an adequate consciousness of their full meaning. It is this clear and deliberate process that we call positive or intuitive thought. In proportion as our symbols are used with a less and less adequate consciousness of their full meaning, the thought becomes symbolical. Symbolical thought is not necessarily confused or fallacious, but it may be so, and whilst we cannot violate the Laws of Thought in positive thought, we are able to do so in symbolical thought. Now confining ourselves to a consideration of symbolical thought in its relation to positive thought, we seem to find an adequate scope for logic as a practical science, which is wanting on the strict conceptualist view, and also a more satisfactory answer to the charge that its principles are mere frivolous tautologies than Mansel himself is able consistently to give.

It is difficult moreover to see how Logic can be adequately marked off from Psychology on the view of Hamilton and Mansel. Let us examine what Mansel himself says about the relation of logic to psychology:—"Psychology inquires what are the actual phenomena of the several acts and states of the human mind, and the actual laws or conditions on which they depend; and in this sense the Laws of Thought themselves are empirical, and within the province of Psychology; inasmuch as it is a matter of fact and experience that men do reason according to them". But surely it is also a matter of fact and experience that men cannot think or reason other than according to them; for how except on a basis of experience can such a conclusion be obtained? Then the determination and exposition of this fact will also belong to Psychology. Mansel himself elsewhere says:—"The inquiry what is the actual nature of Thought as an operation, to what laws it is subject and to *what extent they are* *efficient* does not strictly speaking fall within the province of Logic itself".

And now so long as we remain in the region of positive thought, what is there left for logic? "Logic does not ascertain as a matter of fact that men do reason in this or that form, as governed by this or that law; but on the assumption of certain laws, we are to determine *à priori* the forms which legitimate thinking ought to exhibit, whether mankind in general do comply with them or not." But we have just seen that, so long as mankind really thinks, it *must* comply with these laws, and it is this fact solely that gives them their great importance. So long as we are concerned with *positive* or *intuitive* thought in its purely formal aspect, no question of "ought" can be involved. That consideration is, however, introduced when we turn to the expression of thought.

We may further illustrate the difficulties in which Mansel is involved. "Logic," he says, "deals with the products of the several thinking acts, with concepts, with judgments, with reasonings, as, according to certain assumed laws of thinking, they ought to be or not to be." But if it is possible for the mental products arrived at as the result of positive thinking to be this, that or the other, we have no right whatever psychologically to assume the laws in question. The psychological justification of the assumption is the fact that in so far as any act of pure thought is concerned, the products are necessarily determined, whether we will or not, in accordance with them. Let us, however, amend the position thus:—Logic deals with the verbal expression of the products of the several thinking acts, with names as representative of concepts, with propositions as representative of judgments, with syllogisms as representative of reasonings, as, according to certain assumed laws of thinking (*i.e.*, assumed by Logic, though determined by Psychology), they ought to be or not to be;—then Formal Logic is clearly separated from Psychology, and we have a practical science where one is obviously needed.

Mansel approaches the above view when he says that "Logic has given to determine the necessary relations of concepts to each other; but in so doing it is compelled secondarily to exhibit the corresponding relations of the sounds by which concepts are represented". I should prefer to say that this is what logic should do primarily. No doubt concepts in themselves do bear necessary relations to each other. But these relations psychology determines. As having this function logic cannot be put on an independent basis, it cannot at most be more than a branch or division of psychology. But this it is denied to be, and as such it would have the narrowest dimensions. If we could think without the assistance of a system of signs, and if the laws of thought could not be disobeyed directly or indirectly, it is possible that nothing would be requisite beyond such a work as Mansel's *Prolegomena Logica*, and even a large part of that could be dispensed with. But Mansel does not himself maintain that this is logic. On the view above indicated the importance of the psychological prolegomena is certainly not denied, but we clearly draw the line between the prolegomena and the logic itself; it is difficult to see where Mansel can consistently draw such a line.

Mill's view of the proper function of Formal Logic is not quite easy to determine. In his *Examination of Hamilton*, he appears to adopt the Hamiltonian doctrine in one of its forms. Hamilton, he says, indicates two inconsistent views; if, however, Formal Logic is made to deal with strict necessities, it becomes a branch of psychology, and Mill therefore accepts "our author's second view of the province of logic, which makes it a collection of precepts or rules for thinking, grounded on a scientific investigation of the requisites of valid thought". But I think I have already sufficiently shown that if by valid thought we mean thought as thought, no precepts or rules for thinking can possibly be required; if, on the other hand, valid thought means thought as representing facts, it is a material logic that we have. In his *System of Logic*, Mill gives a far more satisfactory account of what Formal Logic is:—"The name seems to be properly applied to all that portion of doctrine which relates to the equivalence of different modes of expression; the rules for determining when assertions in a given form imply or suppose the truth or falsity of other assertions";—but he does not seem to have been fully aware how far this differs from what he implies in the *Examination*. In his actual treatment of such problems as would generally be considered to belong to Formal Logic, Mill is open to the charge that he endeavours to materialise them, as is pointed out in one instance by Prof. Bain in a recent number of MIND. We see this particularly in his rejection of the *Dictum de omni et nullo* as the axiom of the syllogism, and his endeavours to find an axiom which is not an identical proposition. We must point out, however, that Mill himself admits almost in so many words that the portion of his work which is generally considered to correspond to ordinary formal logic is not in reality ordinary formal logic at all. Both the *Dictum* and the *Nota notæ*, he says, "have their value, and their place in Logic. The *Dictum* should be retained as the fundamental axiom of the logic of mere consistency, often called Formal Logic; nor have I ever quarrelled with the use of it in that character, or proposed to banish it from treatises on

Formal Logic. But the other is the proper axiom for the logic of the pursuit of truth by way of Deduction; and the recognition of it can alone show how it is possible that deductive reasoning can be a road to truth." I am doubtful whether the earlier parts of Mill's *Logic* are usually read in this light, and I should myself entirely reject this double view of the theory of syllogistic reasoning. But a full discussion of the question would occupy too much space here, and for my present purpose it is sufficient to point out how important is the above admission as illustrating the danger of old-fashioned Formal Logic falling into neglect.

We arrive then at the conclusion that writers like Whately and De Morgan, who have recognised the fact that Formal Logic should treat of language, have insufficiently realised its subjective side; that in the case of writers like Mansel and Hamilton, what they profess to give is a useful and necessary study, but is in itself a branch of Psychology, whilst there is another branch of investigation, which they have more or less neglected, or at any rate not explicitly recognised; and that Mill speaks inconsistently of the position of Formal Logic in different parts of his writings, and in his actual treatment of the problems usually included under the science is always trammelled by a consideration of Material Logic beyond.

I should give provisionally the following definition. Formal Logic is the science which treats of the nature and conditions of the conformity of symbolical with positive thought, and which is therefore chiefly concerned with the nature and conditions of the conformity of the expression of thought in ordinary language with thought itself. This is the kind of thought-symbolism of which the investigation is likely to be of practical utility, and which also admits of systematic treatment.

In what has preceded, there has perhaps for purposes of argument been undue stress laid on the verbal expression of formal *reasoning;* but according to the above definition names and propositions will have to be treated co-ordinately with the syllogism, and not in mere subordination. We have to investigate the characters of names as representative of concepts, and of propositions as representative of judgments, as well as of syllogisms as representative of reasonings.

We observe that if this view of Formal Logic be adopted, it does not thereby cease to occupy its place in the category of mental sciences. Although treating of language, it is entirely of language as the instrument of thought, as the system of signs, without which it is admitted that conception, judgment and reasoning, in any but their simplest types, are impossible; and especially of language as the instrument of symbolical thought, in which the signs are used more or less independently of what is signified, and yet must conform to the same laws. Thus Logic treats of language in entire subordination to mental processes and mental laws which have been previously established by Psychology. Language has two important functions. It is, as just described, the instrument of thought, and it is specifically in regard to this function that Logic is concerned with it. But it is also a mode of communicating the thoughts, emotions and volitions of one person to another. Grammar treats of language universally, but with more particular relation to this latter function; and, intimately connected as the two functions of language appear to be, the two sciences may be kept distinct. Grammar is concerned with the different ways of expressing a given mental state, with the structure of sentences, and with the mutual relations and distinctions of words as such; it works with language chiefly from the outside; although mental action and also thought in the strict sense are presupposed, and although it is quite true that Grammar has to discuss many thought-relations, *e.g.*, relations of time, still this is incidental rather than essential, as in the case of Logic. Grammar is not, like Logic, concerned with language and the conditions which it must fulfil as assisting, abbreviating, and even taking the place of actual thought-processes; it is only concerned with the expression of a given and definite thought-product.

A difficulty has indeed been raised as to where the immediate inference of Logic begins and the mere grammatical transformation ends. For example, "All men are mortal, therefore some mortals are men," is a logical immediate inference: but when we pass from "Victoria is the Queen of England" to "Victoria is England's Queen," have we anything that can be called an inference on similar grounds? Prof. Jevons raises this question, but dismisses it as verbal. A more satisfactory solution is given by saying that the answer depends on whether any process of thought is involved in the transformation. In the first case there undoubtedly is; although the concepts are the same, they are viewed in a different relation; the two propositions represent different judgments. But the same is not true in the second case. Here the two sentences represent precisely the same judgment; we have merely two different grammatical forms in which it may be embodied. The one process therefore is logical, the other merely grammatical.

To avoid a misconception that might possibly arise, it may be pointed out that this nominalist view of formal logic does not depend upon the extreme nominalist doctrine which almost implies that concepts are mere words, but only upon the position that language is indispensable for thought; it may be consistently adopted, whilst it is at the same time admitted that

Mansel's own solution of the controversy between nominalism and conceptualism is unexceptionable.

We may observe that if Formal Logic is established on the basis now indicated, it enables us satisfactorily to assign their proper places to the doctrine of the quantification of the predicate and to the more elaborate equational developments of Boole, Jevons and others. We arrive at the conclusion that they should hardly be included in the body of logical exposition, and above all should not be allowed to supersede the ordinary logic, because logic should primarily deal with language as it is. In ordinary language the predicate remains unquantified in affirmative propositions, and the proposition is not regarded as an equation. Propositions therefore with the quantity of the predicate explicitly stated and propositions transformed in a more or less elaborate way into equations should not form our main subject-matter. But whilst general logic should in the main concern itself with the system of signs in common use, still if there are cases with which ordinary language is incapable of dealing, or with which it can deal only with great difficulty, it may be useful to introduce a new system of signs. And this is what I conceive Boole to have done. All this moreover may be a peculiarly useful study and training. But the object of Formal Logic is not so much to obtain results, as to investigate the principles according to which modifications of ordinary language correspond to modifications of thought. We may quote here a remark which Mill makes in reference to De Morgan, but which applies with still greater force to Boole and Jevons :—"The practical use of technical forms of reasoning is to bar out fallacies; but the fallacies which require to be guarded against in ratiocination properly so called, arise from the incautious use of the common forms of language; and the logician must track the fallacy into that territory instead of waiting for it in a territory of his own".

Although, however, the formal logician has in the main to deal with language as it is, he must avoid certain ambiguities of language; a given form of words cannot with him mean sometimes one thing and sometimes another. For example, in ordinary discourse "some" may mean "some at least" or "some, but some at most"; the logician must determine at the outset in which sense he will employ the word. A disjunction in ordinary speech may imply the mutual exclusion of the different elements of the disjunction or it may not; the logician must fix his meaning. If we considered exclusively thought in itself such difficulties could not arise; they depend entirely on the expression of thought. The fact that they cannot help arising is itself a strong argument in favour of the general view of Formal Logic here taken.

We may briefly touch here on the relation between Formal Logic and Algebra. Logic investigates the principles according to which thought-symbolism in general must be manipulated in order that it may maintain a correspondence with thought itself. Algebra investigates the principles according to which thought-symbolism of a particular kind must be manipulated in order that it may maintain a correspondence with thought itself. It is just as impossible to make a purely subjective mistake in working out an algebraical equation as it is to make a purely subjective mistake in formal reasoning, and actual mistakes in algebraical reasoning are explicable in precisely the same way as formal fallacies; we have used a system of signs without fully realising their meaning at each step. The distinction between the two sciences stated generally is that the thought expression with which Logic deals is that of everyday language, and it deals rather with qualitative than with quantitative thought; whilst Algebra takes a special technical thought-expression and is distinctly quantitative. Algebra might be explicitly based on the mental principles which it involves, and in a really philosophical treatment of the science, this should be done. In any case, however, this would form an infinitesimal part of the science on account of the infinity of its subsequent developments both in number and complexity. In Algebra moreover we seek results rather than to investigate principles, whilst the reverse is the case in Logic. For these reasons perhaps the examination of the foundation of algebraical reasoning is generally relegated to Logic; and understanding Logic in a wide sense, we may accept this position for it. Formal Logic may, however, cover a narrower range as above indicated, and concern itself exclusively with the kind of thought-expression that is afforded by ordinary language.

The exact relation between Formal Logic and Material Logic remains to be very briefly indicated. The conditions of knowledge may be said to be threefold, and to lie, first, in thought itself; secondly, in language as the instrument of thought; thirdly, in things. The investigation of these conditions respectively gives us, first, our psychological or metaphysical prolegomena; secondly, Formal Logic; thirdly, Material Logic. If we are to survey the whole field of the conditions and criteria of knowledge, we must certainly include under our first head the metaphysical inquiry whether we possess any intuitive knowledge, and if so what are the conditions and criteria of its validity. So much of metaphysics has indeed been actually included in the treatises of logicians of different schools: *e.g.*, Mill's chapters on Axioms and the Universal Postulate in his *Logic* are distinctly metaphysical, and the same may be said of much of

Mansel's *Prolegomena Logica*. A complete logical training will therefore include, first a Psychological investigation of the laws and processes of thought; secondly, the branch of Metaphysics known as Epistemology; thirdly, Formal Logic with its developments; and, lastly, Material Logic.

✓✓ Of these, Material Logic alone is to be called an objective science, and this is a distinction which it is important not to lose sight of. Mr. Herbert Spencer distinguishes between the science of Logic and an account of the process of Reasoning, the former formulating the most general laws of correlation among existences considered as objective, and the latter the most general laws of correlation among the ideas corresponding to these existences; but whilst fully recognising the value of this distinction, especially from Mr. Spencer's own psychological standpoint, I think that Formal Logic is still left on one side, not falling under either of these heads. Mr. Spencer probably means explicitly to make even purely Formal Logic an objective science, and on two grounds. First, in dealing with the problems of Formal Logic we are unquestionably contemplating ✓ necessary objective relations; we could, for example, teach a child such a logical truth as that expressed in the quantified syllogism, that if most Bs are Cs and most Bs are As then some As are Cs, by means of marbles. It may be admitted that they are necessary objective relations, but the logician does not treat them merely as such, but as subjective relations having a certainty and an authority which as purely objective relations they could not have. Thus in the case supposed, by means of the marbles considered purely as such, we could only teach the child that some As are Cs in this particular instance; but something more than that is required. The subjective correlations may have had ultimately an objective origin as maintained by Mr. Spencer, but that is a psychological question beyond our present concern; the principles of Formal Logic are fundamentally dealt with by it as having a *subjective* necessity, although the assumption may be involved that at any rate so far as the laws of thought are concerned what is necessary subjectively is also necessary objectively. Mr. Spencer argues from the analogy of mathematics, but it may be doubted whether mathematics should be considered a purely objective science. Secondly, "the clearest proof," says Mr. Spencer, "that relations among objective existences form the subject-matter of Logic is yielded by the mechanical performance of logical inference," as in Prof. Jevons's logical machine. But although the performance of logical inference is in this case mechanical, we must remember that the machine has been so prepared as to give only such results as are subjectively valid; although the results are objectively obtained, they are clearly not objectively justified, at any rate so far as the machine is concerned. I have no doubt that a machine could be so constructed as uniformly to give results neither objectively nor subjectively valid.

J. N. KEYNES.

V. JOHN STUART MILL (II.)

HAVING no more documents until 1830, I propose to make a short critical review of Mill's writings and doings in the interval, upon the basis of the information supplied by himself. I will first endeavour, for the sake of clearness, to extract the chronological sequence of the years from 1820 to 1830, which, from his plan of writing, is not very easy to get hold of.

1821. Returns from France (July). Beginning of Psychological studies. Condillac.

1822. Reads the History of the French Revolution; inflamed with the subject. Studies Law with Austin. Dumont's Bentham excites him to a pitch of enthusiasm. Locke, Helvetius, Hartley, Berkeley, Hume, Reid, Dugald Stewart, Brown on Cause and Effect, Bentham's Analysis of Natural Religion. Began intimacy with Grote. Charles Austin. First published writings in the Traveller newspaper.

1823. Utilitarian Society at Bentham's house: Tooke, Ellis, and Graham. Appointment to India House (May 21). Letters to the Morning Chronicle on the Richard Carlile prosecutions (Jan. and Feb.). Frequent contributions throughout the year to the Chronicle and Traveller. Westminster Review projected. Reads up the Edinburgh Review for his father's attack upon it in the first number of the Westminster.

1824. First number of the Westminster appears (March). Contributes to the second number on the Edinburgh Review; to the third on Religious Persecution (?) and War Expenditure; to the fourth on Hume's Misrepresentations in his History.

1825. Principal occupation, editing Bentham's book on Evidence. Starting of Parliamentary History and Review: writes the article on the Catholic Disabilities; also on the Commercial Crisis and Currency and the Reciprocity Principle in Commerce. Learnt German. Began morning-readings in the Society at Grote's house in Threadneedle Street. Went with some others to the debates of the Owenites' Co-operative Society; founding of the Speculative Debating Society. In the Westminster, wrote on the Political Economy of the Quarterly, on the Law of Libel (?), and on the Game Laws (?) (number for Jan. 1826).

1826. Utilitarian Society ceases, and readings at Grote's continue. Speculative Society flourishing. Reviews, for the Westminster, Mignet's French Revolution, and Sismondi's History of France; writes two articles on the Corn Laws; replies to the Quarterly on Greek Courts of Justice. Beginning of "mental crisis".

1827. Speculative Society. Readings at Grote's (turned now to Logic). Articles in the Westminster; review of Goodwin's Commonwealth (?); of Whately's Logic (in number for Jan. 1828).

1828. Speculative Society. Readings at Grote's, on his father's Analysis. Last article in Westminster—Scott's Life of Napoleon. Acquaintance with Maurice and Sterling. Read Wordsworth for the first time. (At some later return of his dejection, year not stated, he was oppressed with the problem of philosophical necessity, and found the solution that he afterwards expounded in the Logic.) Is promoted from being a clerk to be Assistant Examiner in his office. Attended John Austin's Lectures on Jurisprudence in University College.

1829. Withdrew from Speculative Debating Society. Macaulay's attack on his father's Essay on Government produces a change in his views of the Logic of Politics. Attended Austin's second Course of Lectures.

With regard to these nine years, I will first remark on his articles in the Westminster Review. He says he contributed thirteen, of which he specifies only three: of the whole, he says generally, they were reviews of books on history and political economy, or discussions on special political topics, as corn-laws, game-laws, law of libel. I am able to identify the greater number of them.

His first contribution is the article in the second number, on the Edinburgh Review, which continued the attack made by his father in the first number; he puts this down as "of little or no value," although to himself a most useful exercise in composition; it is, nevertheless, in respect of his biography an interesting study. No doubt the opinions are for the most part his father's, though independently and freshly illustrated: the demonstration of the truckling of the Edinburgh Review to sentiment and popularity; the onslaught against lubricated phrases; the defectiveness of the current morality as reflected in the Review; the denunciation of the pandering to our national egotism:—all these were his father *redivivus;* yet we may see the beginnings of his own independent start, more especially in the opinions with regard to women, and the morality of sex.

In the third number (July, 1824), he has an article on War Expenditure, the review of a pamphlet by William Blake on the recent fluctuations of prices. In the fourth number (Oct. 1824), he reviews at length a work on English History, by George Brodie, which is especially devoted to Hume's misrepresentations. He enters fully into the exposure of Hume's disingenuous artifices; and at the present time when Hume's metaphysical reputation is so resplendent, his moral obliquity as a historian should not be glossed over. No doubt his Toryism was his shelter from the odium of his scepticism. Mill says of him:—"Hume possessed powers of a very high order; but regard for truth formed no part of his character. He reasoned with surprising acuteness; but the object of his reasonings was not to attain truth, but to show that it was unattainable. His mind, too, was completely enslaved by a taste for literature; not those kinds of literature which teach mankind to know the causes of their happiness and misery, that they may seek the one and avoid the other; but that literature which without regard for truth or utility, seeks only to excite emotion."

In the fifth number (Jan. 1825), he assails the Quarterly for its review of the Essay on Political Economy in the supplement to the Encyclopædia Britannica. In the sixth number (Ap. 1825), there is a long article on the Law of Libel, the sequel to a previous article on Religious Prosecutions (No. 3), but I have no means of proving them to be his, except that this is one of the topics that he specifies. For the fourth volume, Nos. seven and eight, I have no clue. The ninth number (Jan. 1826) opens with a powerfully-written paper on the Game Laws, which I believe to be his. In the tenth number (April, 1826), there is a short review by him of Mignet's History of the French Revolution, which is principally occupied with pointing out the merits of the book. I have heard him recommend Mignet as the best for giving the story of the Revolution. He reserves all discussions of the subject; "it being our intention, at no distant period, to treat of that subject at greater length". In the eleventh number (July, 1826), there is a searching discussion of the merits of the Age of Chivalry, on the basis of Sismondi's History of France, and Dulaure's History of Paris; which is not unlikely to be Mill's. The Corn-Laws is one of his subjects, and on this there is an article of 30 pages in the twelfth number (Oct. 1826). In the following number (Jan. 1827), there is a second article, referring to Mr. Canning's measure recently brought forward (1826). The concluding article of this number I believe to be Mill's; it deals with a recent article in the Quarterly, on Greek Courts of Justice, and is in his happiest vein. It retorts cleverly upon the exaggerations of the Quarterly, by finding in the English legal practice abuses equal to the worst that the reviewer discovers in the Athenian courts. In the sixteenth number, there is a review of Goodwin's History of the Commonwealth, which seems to follow up the review of Hume.

The article on Whately in Jan. 1828, was the outcome of the discussions in Grote's house the previous year. It is a landmark not merely in the history of his own mind, but in the history of Logic. His discussion of the utility of Logic, at a time when Syllogism was the body and essence of it, hits the strongest part of the case better than the famous chapter on the Functions of the Syllogism; I mean the analysing of an argument, with a view to isolating the attention on the parts. The discussion of the Predicables is an improvement upon Whately. He even praises, although he does not quite agree with, Whately's attempt to identify Induction with Syllogism, and gives him credit for illustrating, but not for solving, the difficulty of our assenting to general propositions without seeing all that they involve. His view of the *desiderata* of Logic is thus expressed:—"A large portion of the philosophy of general Terms still remains undiscovered; the philosophical analysis of Predication, the explanation of what is the immediate object of belief when we assent to a proposition, is yet to be performed; and, though the important assistance rendered by general language, not only in what are termed the exact sciences, but even in the discovery of physical facts, is known and admitted, the nature of the means by which it performs this service is a problem still to a great extent unsolved." On the whole, it cannot be said that he had, as yet, made much progress in Logic, even with the assistance of the debates in Threadneedle Street. The real advances apparently remained to be worked out by his own unassisted strength during the next twelve years. I may remark, in conclusion, that I think he greatly over-rates the value of Whately's book:—"The masterly sketch which he has given of the whole science in the analytical form, previously to entering upon a more detailed exposition of it in the synthetical order, constitutes one of the greatest *merits* of the volume, as an elementary work." If, instead of merits, defects were substituted, the sentence would be, in my judgment, very near the truth. The result of the arrangement was singularly confusing to myself, when I first read the book; and the testimony of all subsequent writers on Logic must be held as against it, for not one, to my knowledge, has ever repeated it. It grew out of the very laudable desire to approach an abstract subject by a concrete introduction; but the conditions of success in that endeavour have scarcely yet been realised by any one of the many that have made it. At a later period, Grote reclaimed strongly against Mill's setting Whately above Hamilton.

The final article, in April, 1828, is the review of Scott's Life of Napoleon. It extends to sixty pages, and is in every way a masterpiece. He had now made a thorough study of the French Revolution, and had formed the design to be himself its historian. He does ample justice to Scott's genius as a narrator, and to a certain amount of impartiality founded on his naturally tolerant disposition, and his aim at winning the good word of everybody. But the exposure of the many and deep-seated defects of the work, both in facts and in reasonings, is complete, and would have marred the fame of any other writer. In point of execution, it is not unworthy to be compared with the Sedgwick and Whewell articles.

I consider some observations called for on the mental crisis of 1826. He had then completed his twentieth year. The subjective description given of his state must be accepted as complete. But the occurrence is treated as purely spiritual or mental; the physical counterpart being wholly omitted; the only expression used, "a dull state of nerves *such as everybody is liable to*," is merely to help out the description on the mental side. Nothing could be more characteristic of the man. There was one thing he never would allow, which was that work could be pushed to the point of being injurious to either body or mind. That the dejection so feelingly depicted was due to physical causes, and that the chief of these causes was over-working the brain, may I think be certified beyond all reasonable doubt. We know well enough what amount of mental strain the human constitution, when at its very best, has been found to endure; and I am unable to produce an instance of a man going through as much as Mill did before twenty, and yet living a healthy life of seventy years. The account of his labours in the previous year alone, 1825, (a lad of 19) is enough to account for all that he underwent in the years immediately following. Moreover, it was too early to have exhausted his whole interest in life, even supposing that he had drawn somewhat exclusively upon the side of activity and reforming zeal. Fifteen or twenty years later was soon enough to re-adjust his scheme of enjoyment, by delicate choice and variation of stimulants, by the cultivation of poetry and passive susceptibility. It so happened that, on the present occcasion, his morbid symptoms were purely subjective; there was no apparent derangement in any bodily organ. Judging, however, from what followed a few years later, we can plainly see in this "mental crisis" the beginning of the maladies that oppressed the second half of his life in a way that could not be mistaken. He got over the attack apparently in two or three years, with powers of enjoyment considerably impaired. That spirit left him for a time, but returned with another still worse.

Preparatory to the additional elucidation of his life and work from 1830 to 1840, I have constructed the following chronological outline:—

1830. Put on paper ideas on Logical distinctions among Terms, and the Import of Propositions. First acquaintance with the French Philosophy of History: St. Simonians; Comte. Went to Paris after Revolution of July. Began to write steadily on French Politics (Examiner).

1831. Writing in Examiner: essays on the Spirit of the Age.[1] Essays on Unsettled Questions in Political Economy (1830 and 1831, not published till long after). Resumed Logical Axioms and theory of the Syllogism. Tide of the Reform Agitation. First introduction to Mrs. Taylor.

1832. Essays in Tait's Magazine; and in the Jurist. Papers on Corporation and Church Property, and the Currency Juggle.

1833. Monthly Repository:—Review of Alison's History; Thoughts on Poetry; Analysis of Platonic Dialogues. In Paris in autumn, and saw Carrel for the first time.

1834. London Review projected; Molesworth to be proprietor. No special work recorded.

1835. Read De Tocqueville's Democracy in America. London Review:—Article on Sedgwick.

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[1] On looking over the file of the Examiner, to see the drift of these Essays, which I expected to turn upon social questions, more than politics, I find that they all point in the direction of his *Representative Government*, in so far as they contain anything constructive. There is a long *exordium* on the character of the present age, as an age of *transition*, with all the consequences growing out of that—unsettlement of existing institutions, in the absence of principles to found new ones upon. "Worldly power must pass from the hands of the stationary part of mankind unto those of the progressive part." "There must be a moral and social revolution which shall indeed take away no men's lives or property, but which shall leave to no man one fraction of unearned distinction or unearned importance." "For mankind to change their institutions while their minds are unsettled, without fixed principles, is indeed a fearful thing. But a bad way is often the best, to get out of a bad position. Let us place our trust in the future, not in the wisdom of mankind, but in something far surer, the force of circumstances which makes man see that, when it is near at hand, which they could not foresee when at a distance." Discussing the way to secure government by the fittest, he considers the time is gone by when wealth is the criterion. Age has more to say for itself, excepting in a time of transition. He considers at some length the sources of moral influence on society. The last of the series (29th May) concludes—"I shall resume my subject as early as possible after the passing of the Reform Bill;" the agitation then going on being used as the climax of the proof that the time is one of transition.

1836. His father's death. Illness in the head. Three months' leave of absence: tour in Switzerland and Italy. London and Westminster Review:—Civilisation (April). Is promoted to be second Assistant in his office (salary £800), and again to be first Assistant (£1200).

1837. London and Westminster Review:—Aphorisms (Jan).; Armand Carrel (Oct).

1838. London and Westminster Review:—A Prophecy (Jan.). Alfred de Vigny (April). Bentham (Aug.).

1839. Illness. Six months' leave of absence; travelled in Italy.

1840. Lond. and West.:—Coleridge (March). Edinburgh Review:—De Tocqueville's Democracy (Oct). With Henry at Falmouth, in his last illness.

He tells us how he was excited by the French Revolution of 1830, and visited Paris in consequence. He wrote on the 13th August a long letter to his father on the state of parties. He begins—"I have had some conversation with M. Say, and a great deal with Adolphe d' Eichthal and Victor Lanjuinais, and I have been a very assiduous reader of all the newspapers since I arrived." "At present, if I were to look only at the cowardice and imbecility of the existing generation of public men, with scarcely a single exception, I should expect very little good; but when I consider the spirit and intelligence of the young men and of the people, the immense influence of the journals, and the strength of the public voice, I am encouraged to hope that as there has been an excellent revolution without leaders, leaders will not be required in order to establish a good government." He then goes on to give a detailed account of how the revolution was accomplished—the flinching of the generals of the army, the cowardice and meanness of Dupin above everybody. He has the lowest opinion of the ministry, not a Radical among them except Dupont de l'Eure; all mere place-hunters. Thiers at the meeting for organising the resistance showed great weakness and pusillanimity. (I heard him long afterwards say he detested Thiers.) Of the new measures he praises most the lowering of the age-qualification to the Chamber from 40 to 30; he has seen no one that attaches due importance to this change. "I am going to the Chamber of Deputies to-morrow with Mr Austin, and next week, I am to be introduced to the Society of 'Aide-toi,' where I am to be brought in contact with almost all the best of the young men, and there are few besides that I should at all care to be acquainted with." "I have heard an immense number of the most affecting instances of the virtue and good sense of the common people." These last observations are thoroughly characteristic. Young men and *ouvriers* were Mill's hopes.

We learn from himself that he wrote the articles in the Examiner on French Politics, for several years. Even when English politics became all-engrossing, he still maintained his interest and fond hopes in the future of France.

His first bad illness was ten years after the beginning of the period of dejection in 1826. In 1836, his thirtieth year, he was seized with on obstinate derangement of the brain. Among the external symptoms were involuntary nervous twitchings in the face. Of the inner consciousness corresponding, we have suggestive indications in the family letters of the time. The earliest allusion to his state is contained in his father's first letter to James in India. "John is still in a rather pining way; though, as he does not choose to tell the cause of his pining, he leaves other people to their conjectures." This shows that he had ceased to give his father his confidence in bodily as well as in his mental matters. His medical adviser sent him in the first instance to Brighton. A letter from thence addressed to Henry at home—date not given, but probably near the time of his father's letter—says:—"There seems to be a change considerably for the better in my bodily state within the last three days; whether it will last, I cannot yet tell; nor do I know whether the place has contributed towards it, as the more genial weather of yesterday and to-day is probably the chief cause." He then says that he will continue his stay if the improvement goes on, but is reluctant to be long absent, partly on account of his father's illness and partly on account of his tutoring "Mary and George". He trusts to Henry to keep him informed on the state of matters, and if he can be of any use to his father, he will forego the present advantages and trust to getting well as the summer advances. In a letter, dated 7th May, from Henry to James in India, occurs a further allusion. "There is a new visitor added to the list of young men who come here, a Dr. King, whom John consults about his health" (he afterwards married the eldest daughter, but soon left her a widow). John "is certainly ill, but nothing, every one assures us, to be frightening himself about". The father's death occurred soon after (23rd June), and on the 29th July, Henry wrote:—"We are all well in health, except John and myself—John from his old complaint." "George and I are going to the continent with John, who has got leave of absence from the India House for three months, on plea of ill-health." In this letter is a postscript—"John has honoured me with the present of a watch that was given to my father by Mr. Ricardo; so you see it is trebly valuable to me." This reminds us of John's loss of his own watch; to which I may add that to the end of his life he had only an ordinary silver watch.

Next day, the 30th, the party left London. They travelled in France and Switzerland for a month, and the two boys took up their abode at Lausanne, while John went on to Italy. The expressions as to his state are still (4th Sept.) very discouraging:—"His head is most obstinate; those same disagreeable sensations still, which he has tried so many ways to get rid of, are plaguing him." Three weeks later Henry says:—"John wrote to us a very desponding letter, saying that if he had to go back without getting well, he could not again go to the India House, but must throw it up, and try if a year or two of leisure would do anything." The same letter incidentally notices that Mrs. Taylor joined the party, and accompanied John in his tour, while the young people remained at Lausanne. We have no farther references to this illness; he got round in time, but he retained to the end of his life an almost ceaseless spasmodic twitching over one eye. His renewed capability for work is shown by the dates of his writings immediately subsequent. He had many illnesses afterwards, but I do not know that anyone was so markedly an affection of the brain as on this occasion.

Two years and a-half later, in the beginning of 1839, he went to Italy, and was away six months on sick leave. The expressions that I shall quote from the correspondence are my only means of knowing the nature and extent of his malady. On the 17th Jan., Henry writes:—"As to John's health, none of us believe that it is anything very serious; our means of judging are his looks when he was here, and also what we have heard from Dr. Arnott. We are told, however, that his sending him away is because his pains in the chest, which are the symptoms, make it seem that a winter in Italy just now will afford him sensible and permanent benefit for the whole of his life. . . . That this might have turned to gout." The next letter is one from himself, dated Rome, 11th March. He says:—"I have returned here after passing about three weeks very pleasantly in Naples, and the country about it. I did not for some time get any better, but I think I am now, though very slowly, improving, ever since I left off animal food, and took to living almost entirely on macaroni. I began this experiment about a fortnight ago, and it seems to succeed better than any of the other experiments I have tried." The remainder of the letter describes Naples and neighbourhood—"Pompeii, Baiæ, Pæstum, &c." Ten days later he writes:—"As for me I am going on well too—not that my health is at all better; but I have gradually got quite reconciled to the idea of returning in much the same state of health as when I left England; it is by care and regimen that I must hope to get well, and if I can only avoid getting worse, I shall have no great reason to complain, as hardly anybody continues after my age (33) to have the same vigorous health they had in early youth. In the meantime it is something to have so good an opportunity of seeing Italy." Again, he writes on the 31st May, from Munich on his way home.—"I am not at all cured, but I cease to care much about it. I am as fit for all my occupations as I was before, and as capable of bodily exertion as I have been of late years—only I have not quite so good a stomach." He then dilates on the pleasures of his Italian tour, to which he added the Tyrol. He returned to his office-work on the 1st July. The only indication of his state is in a letter from Henry:—"John is come back looking tolerably well; he is considerably thinner, however." We infer that his primary affection was in the chest, and to this was added weakness of stomach. In both these organs, he was subject to recurring derangements for the rest of his life.[1]

The London Review, projected in 1834, started in April, 1835. Sir William Molesworth undertook the whole risk; and Mill was to be Editor; although he considered it incompatible with his office to be openly proclaimed in that capacity. His father lent his latest energies to the scheme, and opened the first number with a political article, entitled 'The State of the Nation'—a survey of the situation of public affairs in the beginning of 1835, in his usual style. John Mill's first contribution was the 'Sedgwick' article. I have heard that Sedgwick himself confessed that he had been writing about what he did not understand, but my informant was not himself a Cambridge man. Effective as the article was for its main purpose of defending the Utilitarian Ethics against a sciolist, it always seemed to me rather weak in the Introduction, which consists in putting the question, "For what end do endowed Universities exist," and in answering—"To keep alive philosophy." In his mind, philosophy seemed to mean chiefly advanced views in politics and in ethics; which, of course, came into collision with religious orthodoxy and the received commonplaces of society. Such a view of the functions of a University would not be put forth by any man that had ever resided in a University; and this is not the only occasion when Mill dogmatised on Universities in total ignorance of their working.

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[1] He took the opportunity of studying Roman History while in Italy; and in Rome itself he read Niebuhr. It was long a design of his to write the philosophy of the rise of the Roman power, but he failed to satisfy himself that he possessed an adequate clue. So late as 1844 or 1845, he was brooding over a review-article on this subject.

The second number of the Review is chiefly notable for his father's article on Reform in the Church. It is understood that this article gave a severe shock to the religious public; it was a style of reform that the ordinary churchman could not enter into. The prospects of the Review were said to be very much damaged in consequence. John Mill wrote on Samuel Bailey's Rationale of Political Representation. Bailey's views being in close accordance with his own, he chiefly uses the work as an enforcement of the radical creed. After Bentham and the Mills, no man of their generation was better grounded in logical methods, or more thorough in his method of grappling with political and other questions, than Samuel Bailey.

In the same number, Mill reviews Tennyson's poems. He assigns as his inducement that the only influential organs that had as yet noticed them were Blackwood and the Quarterly Review; on which notices he pronounces a decided and not flattering opinion. He is, accordingly, one of the earliest to mete out justice to Tennyson's powers; and as a critical exercise, as well as a sympathetic appreciation, the article is highly meritorious. In numerous instances besides, Mill was among the first, if not the very first, to welcome a rising genius.

He closes the number with a political article on the measures of the Government for the session, among others, the Irish Church and the Municipal Corporations bills. His text seems to be that the statesmen of the generation are good in destroying, but bad in construction; and he says that the remark applies to all the Whig reforms, and most of all to Lord Brougham's Law reforms.

In the third number, Oct., 1835, Mill reviewed De Tocqueville's book, which had then appeared; the review extending to 45 pages. It was a very full account of the book, with copious extracts, but may be considered as superseded by the article written for the Edinburgh Review in 1840, which is reprinted in the *Dissertations.* The number concludes with a short but energetic review of the Parliamentary session just concluded. It is of the tone and character of all his political writing in those years; a retrospect of recent achievements, with a view of the present position and declaration of the one thing needful for it—a leader. He bitterly complains of the absence of a man of action, and asks, "Why does not Mr Grote exert himself? There is not a man in Parliament who *could* do so much, or who is more thoroughly the people's friend." "O'Connell is the only figure that stands erect." The Liberal Press is too much given to truckling to the Ministry. The bull must be taken by the horns; the Tories must be awakened by the apparition of a HOUSE OF LORDS AMENDMENT BILL.

In the fourth number, January, 1836, he had an article entitled 'State of Society in America,' reviewing a number of books of American Travels, and following up the article on De Tocqueville. It is occupied with an attempt to connect the features of American Society with the industrial position and political constitution of the country. It may be called one of his minor sociological studies.

The fifth number is the first of the union of the 'London' with the old 'Westminster,' hereafter called 'The London and Westminster'. It appeared in April, 1836. Mill contributes to it his article on Civilisation, contained in the *Dissertations*, and a short political article on the State of Politics in 1836. I never felt quite satisfied with the article on Civilisation. The definition given at the outset seems inadequate; and the remainder of the article is principally one of his many attacks on the vicious tendencies of the time. He regards as consequences of our civilisation, the decay of individual energy, the weakening of the influence of superior minds, the growth of *charlatanerie*, and the diminished efficacy of public opinion, and insists on some remedies for the evils; winding up with an attack on the Universities. To my mind these topics should have been detached from any theory of Civilisation, or any attempt to extol the past at the cost of the present. The political article is a survey of the measures pending in Parliament. He is very much excited, as his father was, about the spoiling of the country with unnecessary railways. There is the usual complaint of the torpidity of Radicals, Joseph Hume being his only exception.

For the July number, he contributes only the opening article, which is a political survey, on the text of Sir John Walsh's Contemporary History. It retraces the history of Reform, and its consequences, and discourses on the relative merits of Tories, Whigs, and Radicals, with the usual complaints. Knowing the state of his health this year, the occurrence of his father's death, and his three months' absence, we are surprised to find that he can contribute to the October number; of which the first article is his—on the Definition and Method of Political Economy. Doubtless this had been lying by him, and had been brought out to fill a gap.

In January, 1837, the political article is by Sir William Molesworth (The Terms of Alliance between Radicals and Whigs). Mill contributes only a short paper on an anonymous work of Arthur Helps, I believe his first publication—'Thoughts in the Cloister and the Crowd'. This was another occasion when he displayed his passion for discerning and encouraging the first indications of talent and genius. I remember when I first came to London, this was one of the books he lent me; and we agreed that, in point of thinking power, Helps had not fulfilled the promise of that little work.

For April, 1837, he contributes a review of Fonblanque's England under Seven Administrations; which would be easy work. The article is laudatory enough, but iterates the author's standing complaint against all the journals, namely, too great subserviency to the ministry in power. The political summary in the number is again by Molesworth. Carlyle contributes a short paper on the French Revolution, under an editorial *caveat.*

In July appears the review of Carlyle's French Revolution, which Mill considers to have been one of his grand strokes in the Review. Carlyle's reputation was as yet hanging very dubious. The effect to be produced by the *French Revolution* was extremely uncertain. Mill was now well acquainted with Carlyle, and knew how his peculiarities affected people, and how easily a prejudice might be created that would retard his fame for years. A judicious boldness was the only chance, and the article opens thus:—

> 'This is not so much a history, as an epic poem; and notwithstanding, or even in consequence of this, the truest of histories. It is the history of the French Revolution, and the poetry of it, both in one; and, on the whole, no work of greater genius, either historical or poetical, has been produced in this country for many years.'

Nothing could be better calculated to disarm prejudice against the book than the conduct of this article throughout; it is indeed a masterpiece of pleading, and deserved to be successful, as it was. A little later, Mill admitted into the Review an article on Carlyle by John Sterling, which was a still more complete exhibition of Carlyle, and is probably yet one of the best criticisms that he has ever received. Still, when Carlyle, in his life of Sterling, refers to that article as the first marked recognition he had received in the press, he was unfairly oblivious to what Mill's article had previously done for him.

In this number the political article has to advert to the death of King William, and the events that follow. The Radicalism is as strong as ever; but the signature (E) is not Mill's, and I do not know the author.

The next number is October, 1837. The opening article is the political one, and is by Mill. Its text is the opening of the new Parliament of 1837. It is, if possible, more energetic and outspoken than ever. It addresses first the Ministers, and demands of them the Ballot, as a special measure, and a number of other reforms, the Church included. It addresses the Radicals in Parliament in the usual strain. It hits the Tories very hard for their disingenuous dealing on the new Poor Law at the elections, and demonstrates that not they, but the Radicals, were the real upholders of the rights of property. The incitements to action are redoubled, as the power of the Liberals has diminished. I do not know of any compositions that better deserve to be compared with the Phillipics of Demosthenes than Mill's political onslaughts in those years.

This number contained also the article on Armand Carrel. The best part of it is, perhaps, the history of French politics from the restoration of the Bourbons, on which he was thoroughly informed. The personality of Carrel is sketched chiefly from Carrel's biographers, to which he adds the impressions made by Carrel on himself. The distinguishing aim of Carrel's political life is remarkable for its common sense and intelligibility—to mitigate the mutual hostility of parties as a preparation for a constitutional *régime.* In the summing up of Carrel's personality Mill displays himself:—" Like all persons of fine faculties, *he carried the faculties with him into the smallest things;* and did not disdain to excel, being qualified to do so, in those things which are great only to little men." This doctrine, I conceive, was held by Mill to an erroneous excess; the counter-doctrine of the limitation of the human faculties he never fully allowed for. He believed in *large* minds without any qualification, and saw very little incompatibility between the most opposite gifts.

In January, 1838, appeared the first 'Canada and Lord Durham' article. In the *Autobiography* he celebrates the influence exerted by this and his subsequent article on the return of Lord Durham, and believes that they were a turning-point not merely in the settlement of Canada, but in the future of all our British colonies. Besides writing these articles, Mill exercised great personal influence on Lord Durham's Canadian measures, chiefly through his secretary, Charles Buller, who was always very open to Mill's suggestions. The present article apologises for not reviewing the home political situation at large, because " a question has arisen, which suspends all united action among Radicals ". " On this most grievous subject, we shall, in the course of this article, declare our whole opinion." He yet, however, finds it necessary first to denounce in fitting terms Lord John Russell's declaration of hostility to all reform on the first night of the session. The discussion of the Canadian problem is in his very best style, and is as well worth reading even now as any of his reprinted papers.

The number for April, this year, opens with one of his literary articles, reproduced in the *Dissertations*—'Alfred de Vigny'. This article is his latest and most highly elaborated attempt to philosophise upon Literature and Poetry. The 'Thoughts on Poetry' is his only other paper that he has thought worth preserving. The reviews of Tennyson and Carlyle's *French Revolution* are replete with just criticism, but do not reach the height of philosophical explanation. In his philosophy of style, there are many good points, but, as I conceive, some serious omissions. I doubt if he gave enough thought to the subject. The earlier part of the 'de Vigny' article on the influence exerted on Poetry by Political changes, such as the French Revolution, is I think very happily expressed; and is quite equal to any other similar dissertations by our best historians and critics. It is when he comes to state the essential quality of the poetic genius or temperament, that I think his view defective. In the first place, he puts too much stress on the Emotional quality, and too little on the Intellectual. In the second place, he is wrong in identifying the poet intellectually with the philosopher or thinker: he regards genius, whether in poetry or in philosophy, as the gift of seeing truths at a greater depth than the world can penetrate. On the former of these two heads he accepts De Vigny's emotional delineation—"the thrill from beauty, grandeur, and harmony, the infinite pity for mankind"—as the tests, or some of the tests, of the poetic nature; but he takes no direct notice of the genius of expression, the constructive or creative faculty, without which emotion will never make a poet, and with which the grandest poetry may be produced on a very slight emotional basis. To criticise Shelley without adducing his purely intellectual force, displayed in endless resources of language, is to place the superstructure of poetry on a false foundation. Shakespeare, in any view of him, was ten parts intellect for one emotion; and his intellect did not, so far as I am aware, see truths at a greater depth than the world could penetrate. Mill inherited his father's disposition to think Shakespeare over-rated; which, to say the least, was unfortunate when he came to theorise on poetry at large.

In August, appeared the review of Bentham, which I will advert to presently.

The next number is December, 1838. It closes with Mill's second article on Canada—'Lord Durham's Return'—vindicating his policy point by point, in a way that only Mill could have done. It concludes—"If this be failure, failure is but the second degree of success; the first and highest degree may be yet to come".

The succeeding number appears in April, 1839, and contains the last, and in one view the greatest, of Mill's political series. Liberalism in Parliament is now at its lowest ebb: and only some new and grand expedient can be of any avail. Departing from his old vein of criticism of Whigs and Radicals, he plans the 'Reorganisation of the Reform Party,' by an inquiry into the origin and foundations of the two great parties in the State. He inquires who, by position and circumstances, are *natural* Radicals, and who are natural Tories; who are interested in progress, and who in things as they are. I strongly recommend this article as a piece of admirable political philosophy, and I do not know any reason for his not preserving it, except that it is so closely connected with the passing politics of the time. At all events, it is the farewell to his ten-years' political agitation. As this was the year of his second bad illness, I presume the article was written in the end of 1838, in the midst of great suffering.

After six months' interval, the next number appeared October, 1839. It contained no article of Mill's: he had been abroad the first half of the year. The number is otherwise notable for Sterling's article on Carlyle, and Robertson's on Cromwell. In March, 1840, was published the last number under Mill's proprietorship. It opened with his 'Coleridge' article.

The Bentham article both stands alone as an appreciation of Bentham's work, and also forms one member of a correlative couple with the disquisition on Coleridge. No one possessed the qualifications of Mill for setting forth Bentham's merits and defects: we wish that he had made still more use of his means in depicting Bentham's personality. But in the mode of dealing with the defective side of Bentham, he undoubtedly gave offence to the Benthamite circle. He admits (in the *Autobiography*) that it was too soon to bring forward the faults of Bentham; and, looking at the article now, we may be allowed to say that a little more explanation is wanted on various points; as, for example, Bentham's deficiency in Imagination, his omission of high motives in his Springs of Action, and his aversion to the phrases 'good and bad *taste*'. It is apparent that Mill is criticising him from a point of view not taken by any other of Bentham's friends and disciples. When we turn to the 'Coleridge' article, we find the more explicit statement of his position, as between the great rival schools. There we have a laboured introduction to show the necessity of studying the conflicting modes of thought on all questions; we are told that, as partisans of any one side, we see only part of the truth, and must learn from our opponents the other part. Following out this text, Mill endeavours to assign the truth that there is in Conservatism, when purified by Coleridge and raised to a coherent system, or a philosophy. It is needless to advert to the detailed illustration, but the conclusion is open to remark. A Conservative philosophy may be, he says, an absurdity, but it is calculated to drive out still worse absurdities. To cut the matter short, he hopes from it, not the conversion of Conservatives into Liberals, but the adoption of "one liberal opinion after another as a part of Conservatism itself". Surely this is spreading the snare in the sight of the bird. We may ask whether, after forty years' trial, the Conservative philosophy of Coleridge has really borne such fruits; or whether the adoption of Liberal opinions by Conservatives has had anything to do with philosophical consistency. Did Mr. Gladstone's conversion follow, in any degree, from Coleridge's philosophy?

Be this as it may, these two articles made a temporary alienation between Mill and his old associates, and planted in their minds a painful misgiving as to his adherence to their principles or to any principles. There is, in the *Logic*, an extract from the 'Coleridge' article, on the essential conditions of stability in any society. One of these conditions is that there be something that is settled, and *not to be called in question.* Grote never ceased to convert this remark into an expression for the standing intolerance of society towards unpopular opinions.

From these two articles it is a natural transition to remark generally upon his manner of conducting the Review from first to last. He aimed at a wider comprehension than had ever been allowed before in any periodical representing a sect. He sought out fresh and vigorous thinking, and did not expect a literal adherence to his own opinions. The Review abounds in editorial *caveats,* attached to the articles: his principle of seeing partial truth in opposite sides was carried out in this form. He respected real ability when combined with sincerity, and, as an editor, he never refused a reading to an offered contribution; in fact, he delighted in the perusal of young authors' essays.

It was a noble experiment to endeavour to combine opposites and to maintain a perpetual attitude of sympathy with hostile opinions. A dissertation would be well expended in inquiring into its results. For the present, I remark that, as real opposition cannot be smoothed down, we must still go on the old track of counter-argumentation; while every honest truth-seeker endeavours to do justice to the case of an opponent. The watchword in those days of the Review, was—Sympathise in order to learn. That doctrine, preached by Goethe and echoed by Carlyle, was in everbody's mouth, and had its fling.

Mill's account of the management of the Review, first as held by Molesworth, and afterwards by himself, leaves uncertainties on various interesting points. He was at first sole editor, it appears, without being the avowed editor; he does not say what this exactly meant. In point of fact, he rather supervised than edited the Review. The first acting editor, as I am informed, was Mr. Thomas Falconer, a barrister, and now a county court judge; Mill guiding him, but not being the active correspondent with contributors. During Mill's absence in the autumn of 1836, Mr. Falconer did all the editing uncontrolled, and, in the exercise of his editorial discretion, rejected Carlyle's article on Mirabeau, which Mill had previously approved of; the rejection was afterwards reversed by Mill, who printed the article in the following January (1837). Although not the impression left by the narrative in the *Autobiography*, I am constrained by the facts within my knowledge to believe that Robertson's period as assistant-editor must have begun in the summer of 1837; and Molesworth's retirement could not have been till the end of the year. This affects our estimate of the numbers issued at Mill's sole risk. Molesworth may have borne the cost of ten or eleven numbers, which would leave Mill seven or eight, of the eighteen in all. Molesworth expended, no doubt, a considerable sum in starting it; and Mill must have been both very sanguine, and also very much bent upon propagating his views in politics, philosophy and literature, to take the whole risk upon himself. He paid his sub-editor, and also sixteen pounds a sheet to the contributors that took payment. On these eight numbers he must have lost considerably. I can form some estimate of the loss from knowing what Hickson paid to contributors, when he took over the Review, and worked it on the plan of making it pay its own expenses, he giving his labour gratis.[1]

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[1] I was well acquainted with Mill's sub-editor, John Robertson, now dead. He was a fellow-townsman, and was the medium of my introduction to Mill. I had, for several years, abundant opportunities of conversing with him, and learnt a great deal about Mill during our intercourse. But he was very reticent about his own relations with Mill; he never told me at least, what was his pecuniary allowance as sub-editor; nor did he explain how they worked together in the matter of editing; his habit was to style himself Editor, and to seem to take the sole management. He has not left behind him any record of the connexion between him and Mill; while I know enough of his history to make me doubt whether it commenced in 1836. Those that knew Robertson were not a little taken aback by Mill's character of him :—'A young Scotchman, who had some ability and information, much industry, and an active scheming head, full of devices for making the Review more saleable, &c.' I remember on one occasion when Mr. Disraeli, in the House of Commons, quoted Mill as an authority on some economical view, Lord John Russell, in reply, spoke of him as a *learned author;* the next time I met him, he accosted me with his humorous twinkle 'you see what I am now, according to Lord John Russell'. The *malapropos* here was not even so bad. Robertson's attainments were of the slenderest description, and his industry very fitful; but he could make a vigorous and brilliant display both in composition and in conversation.

Readers of the *Autobiography* remember the account Mill gives of his two most brilliant successes achieved by the Review; the saving of Lord Durham, and the rescuing of Carlyle's French Revolution from probable failure. In an interesting letter written soon after the Review ceased, he insists with even greater *empressement* on these two feats, but adds; "My *third* success is that I have dinned into people's ears that Guizot is a great thinker and writer, till they are, though slowly, beginning to read him—which I do not believe they would be doing yet, in this country, but for me." His admiration of Guizot persisted some time longer, and led to his most elaborate article of all, in the Edinburgh Review, five years later, which article he has seen fit to reprint; but we may suppose that Guizot's subsequent career and writings had a disenchanting effect on him as on many others.[1]

Reverting to the salient idea of his political articles for those seven or eight years—the fatality of there being no leader of the Radical party, although it was composed of very able men—I have often wondered in vain what he expected a leader to do or to be. Everything is not possible even to the greatest of chiefs; and it is doubtful whether any of the men that ever wielded the fierce democracy, from Demosthenes to Gambetta, would have headed a conquering majority in the last years of the Melbourne Ministry. He nearly admits as much, but not without reservation. He says explicitly that his father might have been such a leader; and even implies that he himself could have made the state of matters very different. We may well hesitate on both heads. That his father would have made an able minister

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He contributed striking articles to the Review, the best being his Cromwell. He was also a very good writer of newspaper articles. His impetus and suggestiveness in conversation drew out Mill, who never talked better than he did with him. But although he made friends in London circles and in the clubs, he was very distasteful to many of Mill's associates and increased the difficulties of carrying on the Review; being in fact, for a *novus homo* as Henry Mill styled him, somewhat arrogant. He took much interest in the Scotch Non-Intrusion controversy, and coached the Melbourne Government upon the question. About 1844, he disappeared from London, and was afterwards rarely heard of. Mill scarcely ever mentioned his name in later years. His widow has gathered together the extant indications of his career, but he left few or no reminiscences of his more interesting connexions.

[1] I cannot identify all the signatures of the articles in the Review; but in addition to the contributors incidentally brought forward in the text, I may mention the names of Lytton Bulwer, Charles Buller, J. A. Roebuck, James Martineau, Harriet Martineau, Blanco White, Andrew Bisset, W. J. Fox, Mazzini, George Fletcher, Henry Cole. Never was so much 'good blood' infused into a periodical of the same duration. Of old Reviews, I think it would be difficult to produce nine volumes possessing the same amount of interest and stimulus.

or party-leader, we must cheerfully allow; but his sentiments and views would have required a thick covering of disguise to allow even his being elected to Parliament, and still more to qualify him for meeting that most pressing want of the time—Reform of the Church.

This paper may fitly conclude with the remaining event of importance in the year 1840—the last illness and death of Mill's favourite brother Henry, which took place at Falmouth, on the 4th April, in his 19th year. He was sent there in the beginning of the year, for the relief of his complaint—consumption; and John plied him with every kindness that he could devise. He went and lived at Falmouth, during his illness, as long as he could get away from his office; and had an opportunity at the same time of seeing a great deal of Sterling, who was there also on account of chest-weakness. A letter of warm acknowledgment to Mr. Barclay Fox, of Falmouth, for the attention bestowed on Henry by his family, is for Mill unusually effusive, and teems with characteristic traits. One not a Christian, addressing a Christian family upon death, and wakening up the chords of our common humanity, is a spectacle worth observing.

A. Bain.

(To be continued.)

VI.—THE HEDONICAL CALCULUS.

Problem.—To find (α) the distribution of means and (β) of labour, the (γ) quality and (δ) number of population, so that there may be the greatest possible happiness.

Definitions.—(1.) *Pleasure* is used for "preferable feeling" in general (in deference to high authority, though the general term does not appear to call up with equal facility all the particulars which are meant to be included under it, but rather the grosser[1] feelings than for instance the "joy and felicity" of devotion). The term includes absence of pain. *Greatest possible happiness* is the greatest possible integral of the differential 'Number of enjoyers × duration of enjoyment × degree thereof' (*cf.* axiom below).[2]

(2.) *Means* are the distributable proximate means of pleasure, chiefly wealth as destined for consumption and (what is conceivable if not usual in civilisation) the unpurchased command of unproductive labour.

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[1] Compare the base associations of "Utilitarianism". Surely, as Mr. Arnold says, a pedant invented the term.

[2] The greatest possible value of $\iiint dp\,dt\,dn$ (where dp corresponds to a just perceivable increment of pleasure, dt to an instant of time, dn to a sentient individual).

(3.) An individual has greater *capacity for happiness* than another, when for the same amount whatsoever of means he obtains a greater amount of pleasure, *and also* for the same increment (to the same amount) whatsoever of means a greater increment of pleasure.

This "definition of a thing" is doubtless (like Euclid's), imperfectly realised. One imperfection is that some individuals may enjoy the advantages not for *any* amount of means, but only for values above a certain amount. This may be the case with the higher orders of evolution. Again one individual may have the advantages in respect of one kind of means, another of another. But, if one individual has the advantages in respect of most and the greatest pleasures, he may be treated as having more capacity for pleasure in general. Thirdly, the two advantages may not go together. If "the higher pleasures, such as those of affection and virtue, can hardly be said to come from pleasure-stuff at all" (as Mr Barratt says in his able Note in MIND X. often cited below), it is possible (though not probable?) that the enjoyers of the higher pleasures should derive from the zero, or rather a certain minimum, of means (and *à fortiori* for all superior values) an amount of pleasure greater than another class of enjoyers, say the sensual, can obtain for any amount whatsoever of means; *while at the same time* the sensual obtain greater increments of pleasure for the same increments of means (above the minimum). In such a case the problem would be complicated, but the solution not compromised. Roughly speaking, the first advantage would dominate the theory of population; the second the distribution of means. A fourth imperfection in the statement of the definition is that the units whose capacities are compared are often *groups* of individuals, as families. With these reservations the reality of the definition may be allowed.

But it may be objected that differences of capacity, though real, are first not precisely ascertainable, and secondly artificial being due to education. But, first, even at present we can roughly discriminate capacity for happiness. If the higher pleasures are on the whole most pleasurable—a fact of which the most scientific statement appears to have been given by Mr. Sully (*Pessimism*, Note to chap. 11)—then those who are most apt to enjoy those pleasures tend to be most capable of happiness. And, as Mr Barratt says, it "seems (speaking generally) to be the fact that, the higher a being in the scale of evolution, the higher its capacity for pleasure"; while greater precision might be attainable by improved examinations and hedonimetry. Further it will be seen that some of the applications of the problem turn upon *supposed*, rather than ascertained, differences of capacity. The second objection, William Thompson's, would hardly now be maintained in face of what is known about heredity. But it is worth observing that his conclusion, equality of distribution, follows from his premiss only in so far as a proposition like our first postulate (below) is true of wealth and labour applied to *education*, in so far as it is true that improvement is not proportionately increased by the increase of the means of education.

(4.) An individual has more *capacity for work* than another, when for the same amount whatsoever of work done he incurs a less amount of fatigue, *and also* for the same increment (to the same amount) whatsoever of work done a less increment of fatigue.

This fourth definition may present the same imperfections as the third. Indeed the fourth definition is but a case of the third; both stating relation between means and pleasure. The third definition becomes the fourth, if you *change the signs* of means and pleasure, put means produced for means consumed and the pains of production for the pleasures of consumption. Or not even the latter change, in so far as labour is sweet (which is very far according to Fourier). It is submitted that this identification confirms the reality of the third definition, since the reality of the fourth is undisputed. Of course, if we identify the definitions, we must bear in mind that they are liable to be separated in virtue of the second imperfection above noticed.

Axiom.—Pleasure is measurable, and all pleasures are commensurable; so much of one sort of pleasure felt by one sentient being equateable to so much of other sorts of pleasure felt by other sentients.

Professor Bain has shown (*Emotions and Will*, Third Ed.) how one may correct one's estimate of one's own pleasures upon much the same principle as the observations made with one's senses; how one may correctly estimate the pleasures of others upon the principle "Accept identical objective marks as showing identical subjective states," notwithstanding personal differences, as of activity or demonstrativeness. This "moral arithmetic" is perhaps to be supplemented by a moral differential calculus, the Fechnerian method applied to pleasures in general. For Wundt has shown that sensuous pleasures may thereby be measured, and, as utilitarians hold, all pleasures are commensurable. The first principle of this method might be: Just-perceivable increments of pleasure, of all pleasures for all persons, are equateable (*cf.* Wundt, *Phys. Psych.*, p. 295). Implicated with this principle and Bain's is the following: Equimultiples of equal pleasures are equateable; where the multiple of a pleasure signifies exactly similar pleasure (integral or differential) enjoyed by a multiple number of persons, or through a multiple time, or (time and persons being constant) a pleasure whose degree is a multiple of the degree of the given pleasure. The last expression is open to question (though see Delbœuf *Étude psychophysique*, vii. and elsewhere), and is not here insisted upon. It suffices to postulate the practical proposition that when (agreeably to Fechnerian conceptions) it requires n times more just-perceivable increments to get up to one pleasure from zero than to get up to another, then the former pleasure enjoyed by a given number of persons during a given time is to be sought as much as the latter pleasure enjoyed by n times the given number of persons during the given time, or by the given number during the multiple time. Just so one cannot reject the practical conclusions of Probabilities, though one may object with Mr. Venn to speaking of *belief* being numerically measured. Indeed these principles of μετρητικὴ are put forward not as proof against metaphysical subtleties, but as practical; self-evident *à priori*, or by whatever ἐπαγωγὴ or ἐθισμὸς is the method of practical axioms.

Let us now approach the Problem, attacking its inquiries, separately and combined, with the aid of appropriate POSTULATES.

(*a*) The *first postulate* appropriate to the first inquiry is: The rate of increase of pleasure decreases as its means increase. The postulate asserts that the second differential of pleasure with regard to means is continually negative. It does not assert that the first differential is continually positive. It is supposable (though not probable) that means increased beyond a certain point increase only pain. It is also supposable that "the higher pleasures" do not "come from pleasure-stuff at all," and do not increase with it. Of course there are portions of the utilitarian whole unaffected by our adjustments; at any rate the happiness of the stellar populations. But this does not invalidate the postulate, does not prevent our managing our "small peculiar" for the best, or asserting that in respect thereof there tends to be the greatest possible happiness. The proposition thus stated is evidenced by every-day experience; experience well focused by Buffon in his *Moral Arithmetic*, Laplace in his *Essay on Probabilities*, William Thompson in his *Inquiry into the Distribution of Wealth*, and Mr. Sidgwick in the *Methods of Ethics*.

This empirical generalisation may be confirmed by "ratiocination" from simpler inductions, partly common to the followers of Fechner, and partly peculiar to Professor Delbœuf. All the formulæ suggested for the relation between quantity of stimulus and intensity of sensation agree in possessing the property under consideration; which is true then of what Prof. Bain would describe, as pleasures of mere intensity; coarse pleasures indeed but the objects of much expenditure. Thus pleasure is not proportionately increased by increased glitter of furniture, nor generally by increased scale of establishment; whether in the general case by analogy from the Fechnerian experiments on the senses (*cf.* Fechner *Psychophysik*, ix. 6), or by a more *à priori* "law of relation" in the sense of Wundt.

But not only is the function connecting means and pleasure such that the increase of means does not produce a proportionate increase of pleasure; but this effect is heightened by the function itself so varying (on repetition of the conditions of pleasure) that the same means produce less pleasure. The very parameter in virtue of which such functional variation occurs is exhibited by Prof. Delbœuf in the case of eye-sensations (*Étude psychophysique*, &c.); that a similar variation holds good of pleasures in general is Bain's Law of Accommodation. Increase of means then, affording proportionately increased repetition of the conditions of pleasure, does not afford proportionately increased pleasure. Doubtless there are compensations for this loss; echoes of past pleasures, active habits growing up in the decay of passive impressions. Indeed the difference of individuals in respect to these compensations constitutes a large part of the difference of capacity for pleasure.

It may now be objected: increased means do not operate solely by repeating old pleasures, but also by introducing to new (*e.g.* travel); also the "compensations" may *more than counterbalance* the accommodations. It is generally replied: In so far as a *part only* of happiness increases *only proportionately* to its means, the second differential of happiness with regard to means does not cease to be negative. That second differential cannot be *continually* negative. Its being negative for a space *may* not affect the reasoning. If it does affect the reasoning, one conclusion, the inequality of distribution, would probably (if the pleasure-curve is not very complicated) become *à fortiori*. Not only would the less capable receive then *still less* means, but even the equally capable might then not all receive equal means.

This being postulated, let us mark off the degrees of capacity for happiness on an abscissa (supposing that capacity is indicated by the values of a *single* variable; if by the values of a *function of several* variables, the proof differs only in complexity). At each degree erect an ordinate representing the number of individuals of that degree of capacity. On the rectangle corresponding to each individual it is required to construct a parallelopiped representing his means. Let us proceed to impart the distribuend means—in the first inquiry a given distribuend to given distributees doing each a given amount of labour—by way of small increments. Let us start with the assumption that each individual has and shall retain that minimum of means just sufficient to bring him up to the zero-point of happiness (a conception facilitated by, though not quite identical with, the economical "natural minimum of wages"). Thereafter who shall have the first increment of means? By definition an individual of the highest capacity (at least supposing the *minimum* to be the same in all capacities). Who shall have the next increment of means? *Another* individual of the highest capacity, in preference to *the same* individual by the postulate. Thus a first dividend will be assigned to the first section (all the individuals of the highest capacity) exclusively. But they will not continue sole assignees. Their means only, being continually increased, must by the postulate reach a point such that an increment of means can be more felicifically assigned to an individual of the *second section* (the next highest capacity) than to one of the first. The second section will then be taken into distribution. Thus *the distribution of means as between the equally capable of pleasure is equality; and generally is such that the more capable of pleasure shall have more means.*

The law of unequal distribution is given by a plane curve, in the plane of the capacities and means, say a *megisthedone.* To different distribuends correspond megisthedones differing only by a *constant.* For it is educible from the postulate that there is *only one family* of megisthedones. We may have any number of *maxima* by *tacking* between different members of the family. But the *greatest possible value* is afforded by the *continuous solution.*

If we now remove the condition that each individual shall retain his minimum, what happens? Simply that the megisthedones may now dip below the minimum line. But it is improbable that they should dip very low under the minimum at the lower end while they rise very high above the minimum at the higher end; since excessive physical privations cannot be counter-balanced by any superfluity of refined pleasures. In fact, if we assume that the zero of means corresponds to *infinite pain* of privation, (*cf.* Wundt's curve of pleasure and pain) then by investigating the radius of curvature it is shown that, as the distribuend diminishes, the megisthedone tends to become a horizontal line. In famine the distribution even between unequals is equality—abstracted ulterior considerations, as of posterity.

These conclusions may be affected by the imperfections of the third definition. By the first imperfection, if the "minimum" line were not horizontal. Secondly, suppose that the individuals who have less capacity for pleasures in general have a special capacity for particular pleasures. The bulk of means will be distributed as before. But there will be a residue distributed according to a *second megisthedone.* The second megisthedone super-imposed upon the first will more or less deform it. Lastly, the unit distributee is often a *group* (*e.g.*, a married couple, in respect of their common *ménage*). The conclusions may be affected, in so far as the most capable groups are made up of individuals not most capable *as individuals.*

(β) The distribution of labour (to which attention has been called by Mr. Barratt) is deduced by a parity of reason from the parallel *second axiom:* that the rate of increase of fatigue increases as the work done increases; which is proved by common experience and (for muscular work) by the experiments of Prof. Delbœuf (*Étude psychophysique*). As appears indeed from Prof. Delbœuf's formulæ, the first and second postulates are to a certain extent implicated (whereby the first postulate gains strength). Let us now arrange our individuals according to their *capacity for work* and proceed as before. Who shall do the first increment of work? Of course one of the most capable of work. And so on. *The distribution of labour as between the equally capable of work is equality; and generally is such that the most capable of work shall do more work*—so much more work, as to suffer more fatigue.

The inquiry presents the same declensions as the first. In particular co-operatives are to be compared *not inter se*, but with the *similar* operatives in similar co-operative associations: except indeed so far as the work done is a *symmetrical function* of the effort of fellow-workers. It is deducible that the rowers of a *νηὸς ἐΐσης* shall have equal fatigue; but the fatigue of the pilot is not to be equated to that of the oarsman. All the while it is to be recollected that the fatigue or *pain of work* under consideration may be *negative.*

($\alpha\beta$) To combine the first and second inquiries, determine by the Differential Calculus the constants of a *megisthedone* and a *brachistopone* such that the means distributed by the former may be equal to the work distributed by the latter *and* that the (algebraical) sum of the pleasures of consumption and the pains of production may be the greatest possible. Or, *ab initio*, by the Calculus of Variations, we may determine the *means* and *fatigue* as *independent variable functions* satisfying those two conditions.

$$\text{Let } V = \int_{x_0}^{x_1} n[F(xy) - p - c\{y - f(xp)\}]dx$$

where x is degree of *either* capacity, or more elegantly a third variable in terms of which both capacities may be expressed; x_1 and x_0 are the given limits of integration (the number and quality of the distributees being not in the present inquiry variable); n is the number of each section; $F(xy)$ is a unit's pleasure of consumption, being a function of x his quality (capacity for pleasure) and the *independent variable* y his means; p is the unit's pain of work, another independent variable function; c is the constant incidental to problems of *relative* maximum; $f(xp)$ is the work done by the unit, being a function of his quality (capacity for work) and fatigue (effort).

Greatest possible happiness = greatest possible value of

$$\int_{x_0}^{x_1} n\,[F(xy)-p]\,dx =$$

greatest possible value of V, c being taken so that

$$\int_{x_0}^{x_1} n\,[y-f(xp)]\,dx = 0.$$

The second term of the variation of V,

$$n\left[\delta y^2\,\frac{d_2F}{dy^2} + \delta p^2\,\frac{d_2f}{dp^2}\right]$$

is continually negative by the postulates. Therefore the greatest possible value of V is when its first term of variation vanishes. The first term of variation,

$$n\delta y\left[\left(\frac{dF}{dy}\right) - c\right] + n\delta p\left[c\left(\frac{df}{dp}\right) - 1\right],$$

vanishes only when both

$$\left(\frac{dF}{dy}\right) = c \text{ and } \left(\frac{df}{dp}\right) = \frac{1}{c}.$$

If these equations hold, the two rules (α and β) hold. Q.E.D. The combined solution takes for granted that the means of pleasure and the pain of work *are independent* variables. And to a certain extent this may fail to be the case. An individual may want *strength* or *time* to *both* enjoy the means and do the work which the double rule assigns to him. In that case there will be a compromise between the two rules.

(γ) The *third postulate* simplifying the third inquiry is that capacity for pleasure and capacity for work generally speaking go together; that they both rise with evolution.[1] The *quality of population should be the highest possible evolution*—provided[2] that the first imperfection of the third definition does not give us pause. To advance the whole population by any the same degree of evolution is then desirable; but it is probably not the most desirable application of a given quantity of *means of education.* For it is probable that the highest in the order of evolution are most *capable of education* and improvement. In the general advance the most advanced should advance most.

(δ) The *fourth postulate* essential to the fourth inquiry is that, as population increases, means (the distribuend) increase at a decreasing rate. This is given by the Malthusian theory with regard to the products of extractive labour. And this is sufficient. For the second differential of the whole means with regard to population is still negative, even though a *part* of means increase *proportionately* to the number of population; for instance, unproductive labour requiring little or no materials (*e.g.*, ballet-dancers), or those manufactured articles of which the cost is not appreciably affected by the cost of the raw material. From this Malthusian premiss it is deduced that *population should be limited;* but the hedonical conclusion is not necessarily of the same extent as the Malthusian (*cf.* below $\alpha\beta\gamma$ and $\beta\delta$). A simple inquiry under this head is the following. Assuming that all the sections (degrees of capacity or orders of evolution) multiply equally, and that each section reproduces exactly his kind, to find the rate of increase?

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[1] See *New and Old Methods of Ethics* (by the present writer), p. 72.

[2] *Ibid.*, p. 77.

($\gamma\delta$) A more important inquiry is: *not* assuming that all sections multiply equally, to find the average issue for each section, so that the happiness of the next generation may be the greatest possible.

First let us introduce a conception more appropriate than was possible under the preceding head; namely, that each section does not reproduce exactly its kind, but that the issue of each (supposed endogamous) section ranges on either side of the parental capacity, as thus—

$\nu = \beta\epsilon^{\frac{-(\xi-x)^2}{b^2}} \times \frac{n}{2}$; where ξ is the capacity of the parental section, n its number (= something like $A\epsilon^{\frac{-\xi^2}{a^2}}$, since the parental generation is to be conceived as ranging under a curve of possibility; *cf.* Galton Quetelet, &c.), ν is the number of issue of capacity x. Perhaps b is constant for all the curves of issue; the variation of β alone determines the natural maximum, or artificial limit, of the average issue. But neither the symmetry of the curves of possibility, nor the particulars of this conception, are postulated.

The *fifth postulate* appropriate to this case is that to substitute in one generation for any number of parents an equal number each superior in capacity (evolution) is beneficial for the next generation. This being granted, either analytically with the aid of Mr. Todhunter's *Researches* (chap. II.), or by unaided reason, it is deduced that the average issue shall be as large as possible for all sections above a determinate degree of capacity, but zero for all sections below that degree.

But can we be certain that this method of *total selection* as it might be termed holds good when we provide not only for the next generation, but for the indefinite future? In the continuous series of generations, wave propagating wave onward through all time, it is required to determine what wavelet each section of each wave shall contribute to the proximate propagated wave, so that the whole sum of light of joy which glows in the long line of waves shall be the greatest possible. If in the distant future, agreeably to the views of Herbert Spencer, population tends inartificially to become nearly stationary; if to the contemplator of all time generations fade into differentials; we may conceive formed a differential equation connecting the population of one generation with the population of its successor and involving an *independent variable function*, the average issue for each section. By the Calculus of Variations (if the calculator is not at sea) it is educed that the average issue shall be as large as possible for all sections above a (for each time) determinate degree of capacity, but zero for all sections below that degree. But a further postulate is required for so long as the movement of population is not amenable to infinitesimal calculus; while the present initial irregular disturbances are far from the tranquil waves of the "stationary" state. This *sixth postulate* might be: To substitute in one generation for any number of parents an equal number each superior in capacity (evolution) is beneficial for all time. This postulate being granted, *if possible* let the most beneficial selection be not *total.* Then a total selection can be arranged more beneficial!

If only we have swum through the waves to a *terra firmà*, our position need not appear outlandish. For, first, these rules are very general, founded on very abstract tendencies and requiring to be modified in practice. Thus our principle of selection might be modified, in so far as endogamy should not be the rule, if the higher orders of evolution have a greater tendency to reversion (in violation of the fifth and sixth postulates), and so forth. Again, since to exclude some sections from a share of domestic pleasures interferes with the principle of (α), it could not be expedient to sacrifice the present to the future, without the highest scientific certainty and political security. Again to indicate an ideal, though it can only be approached ἀνθρωπίνως, may be useful. What approach is useful in such cases is to be determined by Mr. Todhunter's principle (*Researches*, chap. II.). Again mitigations might be provided for the classes not selected. (*Cf.* Galton "The weak could find a welcome and refuge in celibate monasteries, &c."; also Sully, *Pessimism*, p. 392). In particular they might have the benefit of rule (β) now almost cut away by the struggle of competition. Again *emigration* might supplement total selection; emigration from Utopia to Atopia —some unprogressive country where the prospect of happiness might be comparatively zero.

($\alpha\gamma\delta$) In the preceding analysis ($\gamma\delta$) the distribution of means (and labour) was supposed given. But the reasoning is unaffected, if the distribution of means is supposed variable; provided that the later postulates are not affected by that distribution. And this they might be on Mr. Doubleday's hypothesis. But in Herbert Spencer's more probable view of the relation of affluence to populousness, the first rule (α) will become *à fortiori.*

Under this head may be considered the question: *What is the fortune of the least favoured class in the Utilitarian community?* Let us consider first the case of *emigration* for the benefit of the present generation. Let us start with the supposition, however inappropriate, that the distribuend does not vary with population; as in an isolated island where the bounty of nature could not be affected by human exertion.

The happiness of the present generation may be symbolised

$$\int_{x_0}^{x_1} n\,[\mathrm{F}(xy) - cy]\,dx + c\mathrm{D}$$

where D is the given distribuend and the rest of the notation is as above ($\alpha\beta$). By the third postulate x_1 is given as the highest existing degree of capacity. What remains variable is x_0, the abscissa of emigration. At the limit $F(x_0 y_0) - cy_0 = 0$. Now c is positive, for it equals $\left(\frac{dF}{dy}\right)$, the first differential of pleasure with regard to means, which (presupposed a utilitarian intelligence) is probaby never negative (above, Postulate I.). But this is not postulated. Only, if $\left(\frac{dF}{dy}\right)$ is negative, we are dealing with the *external case* of the inquiry; determining what sections shall *immigrate* (from Atopia). For if the Utopians have such a plethora of means that their happiness would be increased by a diminution of their means, then immigration will set in until the point of satiety be at least repassed. Then c is positive; and y is essentially positive. Therefore $F(x_0 y_0)$ is positive. It cannot be zero, the zero-point of pleasure corresponding to a positive minimum of means.

In this case *the condition of the least favoured class is positive happiness.* This conception assists us to conceive that a similar answer would be obtained, if the increase of the distribuend with increasing population were *small.*

Small in relation to the megisthedonic share of the least favoured class. Write the distribuend $\int_{x_0}^{x_1} nf(xpN)dx$; where p is the effort of each unit worker, so far supposed given as a function of x; N is the number of population $= \int_{x_0}^{x_1} ndx$. Differentiate the distribuend with regard to x_0. Substitute x for x_0 and call the curve so presented the *Malthusian.* Then *the condition of the least favoured class is positive, zero,* or *negative happiness,* according as at the limit the ordinate of the Malthusian is less than, equal to, or greater than that of the megisthedone.

Our uncertainty as to the condition of the lowest class increases, when we consider the case of *selection* for the benefit of the next generation.

Let $n = \phi(x)$ be the curve of possibility for the present generation. Let $\nu = B\epsilon^{\frac{-(x-\xi)^2}{b^2}} \times \frac{n}{2}$ be the curve of issue for capacity ξ; where B is the natural maximum of issue. Then n^1, the line of possibility for the next generation, is $\int_{x_0}^{x_1} \frac{1}{2} B_{x+z}\epsilon^{\frac{-z^2}{b^2}} \phi(x+z)dz$, where by the fifth postulate x_1 is given as the highest existing degree of capacity; what is variable is x_0 the abscissa of total selection. The happiness of the next generation $H^1 = \int_{-\propto}^{+\propto} [n^1(F(xy) - cy)]dx + cD$, where $\propto$ is a convenient designation for the utmost extent of *variation*—variation in the Darwinian sense x_0 is given by the equation $\frac{dH^1}{dx_0} = 0$; from which it is by no means clear that the condition of the least favoured in the second generation is above zero.

In fact the happiness of some of the lower classes may be sacrificed to that of the higher classes. And again the happiness of part of the second generation may be sacrificed to that of the succeeding generations. Moreover (it is convenient, though out of order, here to add) our uncertainty increases when we suppose the laboriousness also of population variable. *Nothing indeed appears to be certain from a quite abstract point of view*, except that the required limit is above the starving-point; both because in the neighbourhood of that point there would be no work done, and—before that consideration should come into force and above it—because the pleasures of the most favoured could not weigh much against the privations of the least favoured. (*Cf.* Wundt's pleasure-curve.)

It may be admitted however that a limit below the zero of happiness, even if abstractedly desirable, would not be humanly attainable; whether because discomfort in the lower classes produces political instability (Aristotle, &c.), or because only through the comfort of the lower classes can population be checked from sinking to the starving-point (Mill, &c.). Let Politics and Political Economy fix some such limit above zero. If now Hedonics indicate a limit still superior (in point of comfort)—well. But if abstract Hedonics point to a limit *below* that hard and fast line which the consideration of human infirmity imposes, what occurs? Simply that population shall press up against that line without pressing it back.

($\beta\delta$) When labour, as well as number of population, is variable, in order that the vanishing of the first term of variation may correspond to a maximum, there is needed in addition to the second and fourth postulates a further condition between the portions of the second term of (the distribuend's) variations which are under the integral sign. A *seventh postulate*, more than sufficient for the purpose, is that the surface $W = f(p\ N)$, representing the work of a unit in terms of his effort and the number of population, should (for each capacity) have no parabolical or hyperbolical points. This is probable, in so far as it is probable that the functions with which we have to deal are simple. But if this condition fails there fails not the second rule (β); there *might* fail the proof which Hedonics might (as just shown) give that there is a limit of population required for the *well-being*, superior to and quite distinct from the limit which is known to be required for the *being* of society. In short the effect of this last consideration is slightly to diminish the probability (previously even?) that there is such a distinct hedonical limit.

($\beta\gamma\delta$) Under this head should be considered whether rule (β) does not interfere with rule ($\gamma\delta$). And this upon Mr. Herbert Spencer's theory of population it would do. (Contrast however Champagny, *Les Antonins*, III., p. 277.) The present then may have to be sacrificed to the future; though in general how much of the present it is expedient to sacrifice to the future must be as nice a question in political, as in personal prudence.

($\alpha\beta\gamma\delta$) Contemplating the combined movements we seem to see the vast composite flexible organism, the play and the work of whose members are continually readjusted, by degrees advancing up the line of evolution; the parts about the front advancing most, the members of the other extremity more slowly moving on and largely dying off. The final shape of the great organism, whether its bounding line of possibility shall be ultimately perpendicular, whether the graduation of (in a Greek sense) *aristocracy*, or the level of modern revolution, is the ideal of the future, is still perhaps a subject more for prejudice than judgment. Utilitarianism, indifferent about the means, with eye undistorted by prepossessions, looks only to the supreme end.

Corollaries. The application of these inquiries is (I.) to first principles (II.) to subordinate rules of conduct.

I. The end of conduct is argued to be Utilitarianism, as exactly defined in the *Methods of Ethics*, by deducing from that general principle maxims of common sense; perhaps as the constitution of matter is proved by deducing from the theory experimental laws. What inferior accuracy in the moral universe indeed! But before that inferiority should prejudice, let it be settled what degree of accuracy was here to be expected. No one would listen to Prof. Clerk Maxwell πιθανολογοῦντος about the atoms without a mathematical correspondence of his theory and the facts. But we have a large experience of the progress of Physics; it is well seen how she goes; but is the movement of Morals so familiar that the true science should be manifest by her method! Whatever the method—for Universal Eudæmonism prescribes no dogma about the origin of her supremacy; affiliated as readily to practical reason as pure passion, the "Faith" of a Green or "Ideals" of a Grote—whatever our faith, when we descend from faith to works, requiring a criterion for alternative actions, it may be divined that we shall not far err in following, however distantly, the procedure of the *Methods of Ethics*.[1]

Consider first then Equality, the right of equals to equal advantages and burdens, that large section of distributive justice, that deep principle which continually upheaves the crust of convention.

πολλάων πολίων κατέλυσε κάρηνα
ἠδ' ἔτι καὶ λύσει· τοῦ γὰρ κράτος ἐστὶ μέγιστον.

All this mighty moral force is deducible from the practical principle of exact Utilitarianism combined with the simple laws of sentience (α and β).

But Equality is not the whole of distributive justice. There may be needed an ἀξία for unequal distribution. Now inequalities of fortune—abstracted the cases of governor and general and every species of trustee for the advantage of others—are generally explained by utilitarians as the consequence of conventions clear and fixed and preventing confusion and encouraging production, but not otherwise desirable, or rather of which the necessity is regretted. Yet in the minds of many good men among the moderns and the wisest of the ancients, there appears a deeper sentiment in favour of aristocratical privilege—the privilege of man above brute, of civilised above savage, of birth, of talent, and of the male sex. This sentiment of right has a ground of utilitarianism in supposed differences of *capacity.* Capacity for pleasure is a property of evolution, an essential attribute of civilisation (α). The grace of life, the charm of courtesy and courage, which once at least distinguished rank, rank not unreasonably received the means to enjoy and to transmit (α). To lower classes was assigned the work of which they seemed most capable ; the work of the higher classes being different in kind was not to be equated in severity (β, *cf.* Livy II., 32). If we suppose that capacity for pleasure is an attribute of skill and talent (α) ; if we consider that production is an *unsymmetrical function* of manual and scientific labour (β) ; we may see a reason deeper than Economics affords for the larger pay, though often more agreeable work, of the aristocracy of skill and talent. The aristocracy of sex is similarly grounded upon the supposed superior capacity of the man for happiness, for the *ἐνεργεῖαι* of action and contemplation ; upon the sentiment—

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[1] Pp. 90, 346, 392, &c., 2d edn. *Cf.* Buffon, *Moral Arithmetic*: "Le sentiment n' est en géneral qu' un raisonnement implicite moins clair, mais souvent plus fin et toujours plus sûr que le produit direct de la raison." (He is proving our first postulate.)

> "Woman is the lesser man, and her passions unto mine
> Are as moonlight unto sunlight and as water unto wine".

Her supposed general incapacity is supposed to be compensated by a special capacity for particular emotions, certain kinds of beauty and refinement. Agreeably to such finer sense of beauty the modern lady has received a larger share of certain *means*, certain luxuries and attentions (Def. 2 ; *α sub finem*). But gallantry, that "mixed sentiment which took its rise in the ancient chivalry," has many other elements. It is explained by the polite Hume as attention to the weak (*Essay* 14), and by the passionate Rousseau *φυσικωτέρως* (*Émile* 4). Now attention to the weaker sex, and woman's right not only to certain attentions in polite society but to some exemption from the harder work of life, are agreeable to the utilitarian theory : that the stronger should not only do more work, but do so much more work as to suffer more fatigue where fatigue must be suffered (β). It may be objected : consideration should equally be due from the stronger to the weaker members of the same sex. But in the latter case there is wanting a natural instinct predisposing to the duties of benevolence ; there has been wanting also a fixed criterion of strength to fix the associations of duty ; and lastly competition has interfered, while competition between man and woman has been much less open (and much less obviously useful to the race). Altogether, account being taken of existing, whether true or false, opinions about the nature of woman, there appears a nice consilience between the deductions from the utilitarian principle and the disabilities and privileges which hedge round modern womanhood.

Utilitarian also is the custom of family life, among other reasons, in so far as (contrasted with communistic education) it secures for the better-born better educational influences (γ) ; in particular a larger share of good society in early life. The universal principle of the struggle for life, as Mr Barratt may suggest, conduces to Utilitarian selection. This being borne in mind, there appears a general correspondence between the population-theory above deduced ($\gamma\delta$) and the current ethics of marriage, which impose[1] only a precedent condition, success, hereditary or personal, in the struggle for life. Concerning the classification of future society common-sense anticipates no utopia of equality. Physical privations are pitied; the existence of a subordinate and less fortunate class does not seem to accuse the bounty of Providence. (*Cf.* Burke on the "labouring poor" in *Regicide Peace* 3.) With the silence of common-sense accords the uncertain sound of exact Utilitarianism ($\alpha\gamma\delta$).

But, if egoist or intuitionist are not to be altogether converted by the deductive process of Mr Sidgwick, at least the dealing with his exact definition may tend to mark out and reclaim from the indefinite one large common field of conduct, one of the virtues of the intuitionist, one of the gratifications of the egoist—rational benevolence. For can there be a rational wish to please without a willingness to estimate the duration of the pleasure, the susceptibility, as well as the number, of the pleased?

Exact Utilitarianism may also, as Mr. Barratt thinks plausible, present the end of Politics; of Politics as based upon self-interest. A political "contract" for the adjustment of conflicting interests should have two qualities. It should be clear and fixed, universally interpretable in the same sense. It should be such that the naturally more powerful class, those who though fewer outweigh the more numerous by strength ability and capacity to co-operate, should not have reason to think that they would fare better under some other contract. Two contracts present these qualities; the rough and ready *iso*cratical, the exact possibly *aristo*cratical, Utilitarianism. The first contract excels in the first quality; the second in the second.

II. That the same reasonings should lead up to a general principle and down again to its applications—that the theory should be tolerably certain, the practice indefinitely remote—is not more paradoxical than that the demonstrator of the atom-theory should foresee the remote possibility of its application, no less a possibility than to triumph over the second law of Thermodynamics (Clerk Maxwell, *Theory of Heat*, p. 308). The triumphs of Hedonics, if equally conceivable, are equally remote; but they do not so certainly become more conceivable when considered more remote; for what if in the course of evolution the subtlety of science should never overtake the subtlety of feeling! Faint and vague and abstracting many things which ought not to be abstracted, the Hedonical Calculus supplies less a definite direction than a general bias, here briefly and diffidently indicated.

The end of action being defined as above, the Jacobin ideal 'All equal and rude,' J. S. Mill's ideal 'All equal and cultivated,' are not necessarily desirable, not paramount ends to be sought by revolution or the more tedious method of depopulation. Pending a scientific hedonimetry, the principle 'Every man, and every woman, to count for one' should be very cautiously applied. In communistic association (if such should be) the distribution of produce should be rather upon the principle of Fourier than of Owen. Universal equal suffrage is less likely to be approved than plural votes conferred not only (as Mill thought) upon sagacity, but also upon capacity for happiness.

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[1] In respect to population.

The play of the struggle for life is to be encouraged, in the present state of society, within limits, without prejudice to the supremacy of the supreme principle. Mr. Barratt indeed from the same premisses, the utility of competition, infers a different conclusion: that Utilitarianism should resign in favour of Egoism. But surely the inference is, not that the Utilitarian should change his destination from Universal to Egoistic Hedonism (points *toto cœlo* apart, as the chart of Sidgwick shows); but that, while constant to his life's star, he should *tack* (in the present state of storm at least) more considerably than the inexperienced voyager might advise. No one can misunderstand this "self-limitation" of Utilitarianism—for it has been explained by Mr. Sidgwick; least of all the Egoist—for a similar delegation, without abdication, of the supreme command is much more necessary in the case of the supremacy of self-love (Butler, &c.).

Lastly, while we calculate the utility of pre-utilitarian institutions, we are impressed with a view of Nature, not, as in the picture left by Mill, all bad, but a first approximation to the best. We are biassed to a more conservative caution in reform. And we may have here not only a direction, but a motive, to our end. For, as Nature is judged more good, so more potent than the great utilitarian has allowed are the motives to morality which religion finds in the attributes of God.

F. Y. EDGEWORTH.

VII.—NOTES.

THE SO-CALLED IDEALISM OF KANT.

In a note by Professor Caird, in MIND XIII., there are some remarks on Kant's view of the external world which appear to me inaccurate and misleading: and since Mr. Caird has acquired a right to speak with some authority on this subject, it seems desirable that his misrepresentations—if I am right in so regarding them—should be carefully noted and pointed out. The passage to which I refer is the following:—

> "The truth is that Mr. Balfour has never realised the difference between the so-called Idealism of Berkeley and the Idealism of Kant. This is manifest from the whole course of his paper, and particularly from some of his criticisms on Kant's 'Refutation of Idealism'. Thus (p. 498) Mr. Balfour says: 'The real question is this—Does being in space and outside the body imply that the extended and external object is outside of mind, and other than one of the series of conscious states?' And then he proceeds to accuse Kant of a confusion between the idea of externality *to* consciousness, and the idea of externality in the sense of existence *in* space (which, it may be remarked in passing, Kant has expressly and clearly distinguished, *Kritik*, ed. Rosenk, p. 299), because he only attempts to show that the explicit consciousness of the external object in the latter sense is prior to the explicit consciousness of the self as an object, and does *not*

attempt to show that there is an existence of things in themselves independent of consciousness. But if Mr. Balfour had understood what Transcendentalism implies, he would have seen that its effect is to make the latter problem meaningless, and to substitute the former for it. (*Cf.* Mr. Green's article in *Contemporary Review*, Dec., 1877, p. 30.) No doubt there is an occasional uncertainty in Kant's language, especially in the first edition of the *Kritik*."

Before I criticise this passage, I must disclaim any intention of carrying on Mr. Balfour's controversy with Prof. Caird. The article to which Prof. Caird is replying was addressed to a doctrine called Transcendentalism, conceived as common to Kant and a certain number of contemporary English writers, including Prof. Caird. Now that there is such a common doctrine I do not doubt; but I have not been able to gather from Mr. Caird's work on Kant any such knowledge of its principles or method as would justify me in attempting to criticise it closely.

At present, therefore, I am only concerned with Mr. Caird as an expositor of Kant. In this capacity I understand him to affirm (1) That Kant held a doctrine which may properly be called Idealism, because he regarded the question whether or not there is an existence of things in themselves independent of our perception of them as "meaningless"; and (2) that in his "Refutation of Idealism" he substituted for this the question whether or not we have an explicit consciousness of objects in space outside our bodies prior to the explicit consciousness of self as an object. Neither of these positions appears to me tenable.

As regards the first point, I quite admit that great latitude ought to be allowed to a philosopher in choosing the precise signification that he will attach to such a term as Idealism. Still I think that the word will inevitably be understood by English readers to denote a doctrine "concerning the existence of things"; and in this sense Kant emphatically and reiteratedly repudiated the appellation. The following passages from the *Prolegomena*, § 13, Remarks 2 and 3, are surely sufficiently explicit (I quote from Mr. Mahaffy's translation) :—

> "Idealism consists in the assertion, that there are none but thinking beings, all other things, which we think are perceived in intuition, being nothing but representations in the thinking beings, to which no object external to them really corresponds. Whereas I say, that things as objects of our senses existing outside us are given, but we know nothing of what they may be in themselves, knowing only their phenomena, that is, the representations which they cause in us by affecting our senses. Consequently I grant by all means that there are bodies without us, that is things which though quite unknown to us as to what they are in themselves, we yet know by the representations which their influence on our sensibility procures us, and which we call bodies, a term signifying merely the appearance of the thing which is unknown to us, but not therefore less real. Can this be termed idealism? It is the very contrary."

He adds "I should be glad to know what my assertions must be in order to avoid *all* idealism. . . . my protestation against *all* charges of idealism is so valid and clear as even to seem superfluous, &c". And to meet the objection that he has himself called his theory

"Transcendental Idealism," he explains that "my idealism concerns not the existence of things (the doubting of which however constitutes idealism in the ordinary sense) *since it never came into my head to doubt them*, but it concerns the sensuous representation of things." I do not see how Mr. Caird can hold that Kant when he wrote these passages regarded as "meaningless" the question whether "there is an existence of things in themselves independent of consciousness"; nor how he can say that there is here any "uncertainty in Kant's language"; and I do not understand him to hold with some German writers that Kant changed his opinion on this fundamental point between 1781 and 1783, or misrepresented his real conviction out of a base regard for his reputation.

But secondly, if any one, with the passages above quoted from the *Prolegomena* before him, will consider carefully the 'Refutation of Idealism' in the second edition of the *Kritik*, I hardly see how he can avoid the conclusion that Kant in the latter passage does confound "the idea of externality to consciousness" and the "idea of externality in the sense of existence in space". He states as the 'Theorem' to be proved—"The simple but empirically determined consciousness of my own existence proves the existence of external objects in space"; and then proceeds with the proof, as follows:—

"I am conscious of my own existence as determined in time. All determination in regard to time presupposes the existence of something permanent in perception. But this permanent something cannot be something in me, because my very existence in time can only be determined through this permanent something. Therefore the perception of this permanent is only possible through a *thing without me*, and not through the mere *representation* of a thing without me. It follows that the determination of my existence in time is possible only through the existence of real things which I perceive without me."

It is evident that the "Ding ausser mir" in the third sentence of this 'proof,' contrasted as it is with the "blosse Vorstellung eines Dinges ausser mir" is identical with the "unbekannter aber nichts desto weniger wirklicher Gegenstand" of the passage from the *Prolegomena—i.e.*, it is a thing external to consciousness: while again it must be identical with the "Gegenstand in Raum ausser mir" of the 'Theorem'. The two notions of 'externality in space' and 'externality to consciousness' have here run into one in Kant's mind—however true it may be that he has elsewhere "expressly and clearly distinguished them".

HENRY SIDGWICK.

ALLEGED SUICIDE OF A DOG.

AN account of the great grief shown by a chimpanzee at the death of its female companion, which has recently gone the round of the newspapers, has been the occasion of speculations concerning the very human passions of some animals, and of stories of actual suicide by them in certain instances. One Journal believes there is a well-authenticated story of a cat which, having had its kittens drowned, was so grief-stricken at its bereavement that it deliberately committed suicide by strangling itself in the fork of the branch of a tree. The writer's experience of life in the country cannot have been very great, or he would have heard of other instances in which cats running up trees after birds had slipped and, being caught in a forked branch, had been strangled. Had he extended his inquiries he might even have become acquainted with instances in which the same fate had overtaken human beings. Stories of the kind require to be severely sifted, and ought not to be accepted unless the narrator either shows by his narrative that he has taken every pains to avoid the common fallacies of observation and inference, or has been strictly cross-examined by some one who, being more apt to doubt than to believe, is alive to, and on his guard against, these fallacies.

Some years ago a very striking story of suicide by a dog went the round of the newspapers. It was of this kind :—The dog had been taken from its home to another home where it was exceedingly unhappy; it returned after a time to its old home, whining piteously for admission, but was driven away; thereupon it went to a river which was close by, was seen to enter the water and to deliberately lay itself down in it, and was drowned. Having expressed to Dr. Lauder Lindsay of Perth, who has been engaged for some years upon a work on the subject of *Animal Intelligence,* my disbelief that there was any suicide in the case, if it was strictly inquired into, he was kind enough to put me in communication with Dr. Brown of Rochester, who was in a position to throw light upon it. Dr. Brown, with great courtesy, gave me the following account of the matter :—

7th April, 1875.

"Case of 'Bruce' the Upnor dog that drowned itself about eight years ago in March or April.

"The owner was Mr. Home of the King's Arms, Upnor, afterwards of Frindsburg. Mr. Home had the puppy whilst residing at Upnor. The dog did not like its master's removal to Frindsburg and always appeared to be attached to the old house. The mistress was extremely fond of the dog.

"The dog's mother was a spotted brown and white bitch used for hunting rabbits; the father was a water-dog—a retriever or something of that sort. 'Bruce' usually disliked water, for it was thrown into the water when very young. It had a white body with silvery long hair and brown head and ears. The eyes were red and the character was somewhat ferocious, for it would not allow any one to touch it except its mistress.

"The mode of death was as follows :—There was a supper given and a sucking-pig was eaten. The dog had some of it, and appeared to have got a bone into its throat or to have been poisoned; but it was not known for certain what had happened. It was ill for eight days, eating nothing, and vomiting. The mistress fed it with gruel in a spoon. Several times the dog would put its head into a pail of water and let the water get into its throat and run out again: it would not drink properly. At the end of eight days the mistress sat up all night with it, and at five in the morning she let it out of doors: she sat up with it to prevent it from tearing the paint-work. The dog at once proceeded to Upnor to the old house. The master's mother who was residing in this house heard it, but would not open the door and let it in, being afraid of it because of its illness, for people said that it was mad and ought to be drowned. The dog went to the river at six a.m. and walked into the water, and lay down in the water, and so was drowned. The witnesses were Hobb, a waterman at Upnor, now alive, and Tanner, now dead. They were in a lighter close by.

"The mistress does not believe that the dog committed suicide. She thinks that it went into the water to cool its throat, as it was accustomed to do in the pail of water. She related these facts to me on April 7th, 1875.

"FREDK. J. BROWN, M.D.

"The dog got nearly blind during its illness."

Such is an accurate account of what happened, and it evidently does not warrant the conclusion of suicide. The owner of the dog, as Dr. Brown informed me in a subsequent letter, had no doubt that the death was due to exhaustion from disease and want of food; and that was Dr. Brown's own opinion. He had known other instances in which animals suffering from disease and dying in consequence of it, or with the concurrence of some accident in their exhausted state, were popularly supposed to have put an end purposely to their sufferings. When he was a boy he resided near the Medway. The sheep fed on the marshes suffered occasionally from staggers, a disease of brain produced by the presence of a hydatid cyst in it; and they were sometimes found drowned in a ditch which surrounded the field, having staggered about and fallen into it in their vertigo. A far more probable explanation than suicide—indeed the explanation which the shepherd gave of the matter.

It is quite possible that an animal in a state of excitement or delirium from pain and illness may make a frantic rush which issues in its death, just as a human being may do; but that is quite a different thing from a distinctly conceived and deliberately perpetrated suicide. Of such an act by any animal below man we are yet in want of satisfactory evidence.

HENRY MAUDSLEY.

Since the foregoing was written I have met with the following story in a newly published book on *The Relations of Mind and Brain* (p. 140), by Professor Calderwood:—

"I have known two very striking cases of the speedy death of a dog under grief. In one case narrated to me by the owner of the animal, a dog had occupied itself, when the family were at church, with pursuing and killing the poultry belonging to the household. After having killed them it carefully buried them one by one in different parts of the garden in which the pursuit and slaughter had taken place. Shortly after the return of the family, the absence of the hens was remarked. Search was made, but no trace of them could be found either about the premises or in the neighbourhood. At length the attention of some one was arrested by evidence of the ground in some parts of the garden having been disturbed. The soil was turned up, and the hens' bodies were found. The dog was taken to the garden, and immediately confessed his guilt. His master took him to the library, and, having shut the door, began a reprimand after this fashion:—'What a wicked thing you have done in murdering the hens! You are a minister's dog, and should have been an example to other dogs, instead of doing such a thing as this. Then, this is Sabbath-day, and the deed is all the worse on account of the day on which it has been done.' Thus admonished, the dog was put out at the door, and the door shut. Next morning he was found dead. A coroner's inquest was not held, but a veterinary surgeon was consulted, and he gave the verdict, 'Died of a broken heart'. He said had the animal been well punished, and then received into favour again, all would have been right; but he could not bear to be treated as an outcast."

Dr. Calderwood tells us in a footnote that he had this story from the Rev. Dr. Robertson of Irvine, "distinguished equally for his high appreciation of art and his power in preaching the gospel, and known to all his friends as one peculiarly fond of animals". Therefore he does not seem to have thought it necessary to make any more minute inquiries into the circumstances of the dog's sin and death: to have satisfied himself, for example, whether it was the dog's first offence of the kind—whether, in fact, dog, unlike man, becomes *repente turpissimus;* whether the housewife, or whoever had charge of the poultry, took the same view as the kind-hearted doctor of the efficacy of moral reprobation to change the heart of a dog and to turn it from the error of its ways; whether the veterinary surgeon made a post-mortem examination of the dog before giving evidence as an expert as to the cause of its death; and if so, whether the examination was thorough, that is to say, included not only an examination of the heart and other organs but a chemical examination of the contents of the stomach. That a sinning dog can feel shame and remorse, when it is found out, cannot be doubted; and it may be that it will go out sorrowful from its offended master's presence and die of a broken heart—for my part, I do not doubt that a Scotch Sabbath-breaking dog would—if only the moral rebuke were accompanied or followed by a sufficient dose of arsenic.

H. M.

EXPERIMENTS WITH HUMAN BEINGS.

Dr. G. M. Beard of New York, whose remarkable essay on the various forms of the state of Trance was summarised in MIND VIII., p. 568, has recently contributed to the N.Y. *Popular Science Monthly* (March and April, 1879) two papers rather ambiguously entitled "Experiments with Living Human Beings," in which he seeks to formulate the sources of Error that have specially to be guarded against in all investigations where the human subject is concerned. His study of Trance and related nervous conditions had before led him to consider the bearings of neurological science on the value of Human Testimony, and the Sources of Error now noted have, he thinks, never been properly taken account of hitherto just because they lie for the most part in the nature of the nervous system which has been so little understood. While the elements of error in experimenting with inanimate objects have long been formulated by Bacon and others, the special elements of error in experimenting with human beings have not been made the subject of conscious and exhaustive analysis, but have been eliminated by mere instinct when they have been eliminated at all. Dr. Beard makes six of them, and insists that in every case they must be systematically and, if possible, simultaneously guarded against;

to overlook one of them in any research being as bad as overlooking them all.

The enumeration is as follows :—

I. The phenomena of the involuntary life in both the experimenter and the subject experimented on.
II. Unconscious deception on the part of the subject experimented on.
III. Intentional deception on the part of the subject.
IV. Unintentional collusion of third parties (audiences, witnesses, bystanders, assistants seen or unseen).
V. Intentional collusion of third parties.
VI. Chance and coincidences.

To guard against I. and II., there are two things necessary for the experimenter :—

(1) A general knowledge of the phenomena of the involuntary life, including the action both of mind on body and body on mind, in health and in disease, and especially of the real nature of Trance, the state in which the involuntary life culminates.

(2) The subject experimented on must always be *deceived* in the experiments in such a way that the involuntary action of the mind or body cannot come in and destroy the experiment, namely thus—

(a) By doing something when the subject believes that the experimenter is doing nothing.
(b) By doing nothing when the subject believes that the experimenter is doing something.
(c) By doing something different from what the subject believes is being done.

Sources III., IV., V. can be guarded against only by systematic, orderly, exhaustive deception on the part of the experimenter; and no account whatever is to be taken of the honesty of the subjects in other respects, the absence of assignable motive for deception, &c.

The remaining source of error (VI.) is liable to vitiate the research of educated men especially, and more perhaps than any other of the six, excepting always the involuntary action of mind on body. In its direct and practical bearings on experimental research and the principles of evidence, the subject of chance and coincidences has never received sufficient attention from men of science, and the very development of the mathematical side of the philosophy of chance has had the effect of misleading amateur experimenters and reasoners to employ mathematical estimates in circumstances where they do not apply.

In closing his observations, which are illustrated throughout by very pertinent references to recent forms of credulity that have manifested themselves as much among scientific men (from want of special enlightenment) as among common people, Dr. Beard remarks how the growth of medical science has been retarded by the want of systematic recognition of these various sources of error. In trying all new remedies and systems of treatment, the aim of the scientific physician should be to deceive the patient (when this is possible) so thoroughly that whatever effects are obtained must be known positively to be the action of the treatment or of nature.

Dr. Beard starts now, as before, with the assumption, in all these matters, that no human being ever has any faculty different in *kind* from what is to be found in all other people. Those who do not make that assumption or who are not in the same way careful to exclude the elements of error above noted, will be prone to judge otherwise than Dr. Beard of such phenomena as have of late been gravely—more than gravely—reported from Leipsic.[1] Dr. Hermann Ulrici of Halle, for example, has been thereby led to declare with his whole philosophical authority, in an article just published in his own journal *(Zeitschrift für Philosophie, &c.*, LXXII., 2), that "so-called spiritism" has at last become a scientific question; meaning that the facts and their conditions must all have been exactly as they are described by a professor so eminent, so high-minded, &c., &c., and that philosophers can no longer hesitate to seek for the special objective cause of such remarkable phenomena. For himself, he rejects as inadequate the supposition of special natural powers in particular men to produce such astounding dynamic effects; and also he cannot, on Kantian principles, allow the reporter's brave theory that the phenomena are all quite natural and intelligible if only space is allowed to have its long-sought fourth dimension. He can but regard as most probable that they are really the work of departed "spirits" as popularly believed; and the reason, he farther suggests, why the manifestations are particularly frequent now-a-days may be that never in history has human faith in a future life become so weak and stood so much in need of demonstration from 'beyond the veil'. For there are now, he sadly reminds us, no virgin-peoples left to right the faith of decaying civilisation,—as once before, in a time of like peril, European faith and morality were restored by the Northern nations who made an end of the declining empire of Rome.

EDITOR.

VIII.—CRITICAL NOTICES.

The Colour-Sense: Its Origin and Development. An Essay in Comparative Psychology. By GRANT ALLEN, B.A. London: Trübner & Co., 1879. Pp. ix., 282.

Psychology must be said just now to be in a fluent condition. The old conception of the science as limited to the introspective study of the human mind is fast disappearing, and it is as yet difficult to say what new shape this department of knowledge is destined to take. It seems plain that a purely human psychology is to be supplemented by an animal or comparative psychology. It is equally plain, too, that this far larger region of mental life will have to be studied in close connexion with its physiological conditions. This of itself would serve so to widen the scope of the science as to leave its boundaries very imperfectly determined. But in addition to this it seems probable that, in accordance with the evolutionists' way of looking at things, mind will henceforth have to be studied genetically, as an accompaniment of animal life which has been slowly evolved by the action of organic laws. This view of psychology appears well nigh to efface all distinct boundaries between it and other sciences. For as soon as we begin to enquire how any widespread and elementary mental function originated we find ourselves necessarily involved in a consideration of a number of questions which have hitherto been supposed to belong exclusively to the sciences of natural history. This being so, the psychologist who attempts to explore these wide outlying fields must, it is clear, be endowed with very various scientific knowledge. And even if this is present his task will be necessarily one of great difficulty. For first of all it may happen that the science from which he needs to borrow his premisses is insufficiently settled and fixed, in which case he will hardly be able to avoid slipping from the stand-point of a psychologist to that of a naturalist. And even if he should escape this danger he will in any case have to accomplish the difficult feat of co-ordinating and organising the results of distinct lines of scientific research. To do his work completely he will have to bring to bear on his special problem a number of converging arguments drawn from sciences as distinct as zoology, comparative anatomy and even geology.

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[1] Fr. Zöllner: *Wissenchaftliche Abhandlungen,* Th. I. II. Leip.: Stackmann, 1878.

These remarks have been suggested by the appearance of a book which may be said to be the first finished essay on a special subject in the new and wider psychology which has just been opened up. Mr Grant Allen made his mark two years ago as one well skilled in the art of applying the doctrine of evolution to psychological problems. His *Physiological Æsthetics* (reviewed in MIND VII.) was in every way remarkable as a serious attempt to throw light on one of the most intricate branches of the higher psychology, namely, the science of taste, by help of simple organic laws whose sway reaches down to the most elementary forms of animal life. In his new work he selects a narrower theme. He takes one particular mode of sensibility, the colour-sense, and seeks to trace the laws of its origin and development in the animal series. In doing this he gives us little if any psychological analysis. The subject is too simple and familiar to need this. He also does not go very much into the anatomical and physiological conditions of the sensibility, the history of which he seeks to ascertain. Physiology cannot tell him enough of these conditions to be of much practical service. But he has much to say about the varieties and distribution of plants, and the structure and functions of flowers and fruits, subjects belonging to botany and vegetable physiology. In thus seeking his data in a foreign region, Mr. Allen is careful to disclaim the character of a specialist. "I enter the lists (he says) as a comparative psychologist, not as a biological student. I do not pretend to discover facts of botany or zoology at first hand. I accept them as data from the lips of competent specialists." Yet in point of fact the uncertainty of much of the reasoning of naturalists drives him again and again to compete with them on their own ground and to group facts and to draw inferences from them quite in the manner of Mr. Darwin and Mr. Wallace themselves. In truth it may be said that, while the ultimate aim of Mr Allen's work is a psychological one, the greater part of its argument is purely biological. The value of the facts and the legitimacy of the inferences drawn from them can only be appreciated and tested by trained naturalists, and some of these have already shown that they are fully aware of the relation of Mr Allen's book to their own special department of research. This being so, there is little to be done in this place except to give a summary of Mr. Allen's argument, reserving criticism for the few points where properly psychological questions come to the front.

Mr. Allen aims at a full and exhaustive presentation of his subject. So he begins with a clear and popular account of the objective side of colour or aether-waves of different rates of vibration and of their probable action on developing organisms. He seeks to account by the known principles of evolution for the presence in animal organisms of nervous structures related to light-waves and heat-waves and the absence of structures answering to the chemical rays of the spectrum. Passing from the objective stimulus in colour-sensibility to the organ, he endeavours to establish a connexion between the functions of locomotion and vision. It is only animals capable of locomotion and so of approaching their prey and shunning their devourers that would derive any advantage from the possession of a visual organ. The development of the organ proceeds by way of three stages—the growth of sensibility to degrees of light, the acquisition of the power of perceiving form by means of a plurality of isolated nervous elements, and the genesis of nervous structures fitted to discriminate qualitative differences in light, that is to say, the colour-sense. With respect to this last mode of sensibility our author points out how very little is certainly known as to the underlying anatomical conditions. There is very good reason for conjecturing that the retinal cones are specially concerned in colour-perception, though this supposition requires further support, while the way in which the various kinds of rays act on the nervous structures is wholly shrouded in obscurity.

So far Mr Allen has been laying down the most general truths of his subject. He now passes to consider the special circumstances in the life and surroundings of animals which have served to call into existence and to strengthen the colour-sense. From this point the reasoning is almost exclusively borrowed from natural history. Mr Allen is an out-and-out Darwinian, and thinks it absurd to imagine any structure appearing in the course of animal evolution except in answer to some pressing need of the animal's life and according to the law of natural selection. He first of all takes up the colour-sense in insects, and seeks to establish the proposition that the development of this faculty proceeded *pari passu* and in the closest correlation with the development of coloured appendages or flowers in plants needing to be fertilised by insects. In developing this argument, Mr. Allen has to enter into a number of questions of organic chemistry, geology, &c. Whatever the precise scientific value of this reasoning, one cannot but admire the ingenuity he has shown in directing his various lines of argument towards a single result. Mr. Allen has a very interesting way of presenting the processes of organic life, as viewed in the light of natural selection, under the guise of consciously pursued objects. There is no doubt a danger of mistaking this figurative mode of presentation for plain description, a danger which Mr. Butler, in his recent works, either falls into or would emphasise by means of ironical exaggeration. Yet, as Mr. Allen elsewhere says, the doctrine of evolution teaches us that things have come to pass pretty much in the same way as though some design had been consciously aimed at; and he may therefore justify his habit of talking of plants in their development as creatures endowed with ordinary human foresight and desire for life. Mr. Allen completes his account of the colour-sense in insects by recapitulating the facts of mimicry in insect-hues dwelt on by Messrs Darwin and Wallace.

Just as in insects the colour-sense was, according to our author, first developed as giving its possessors an advantage in finding their food stored up in flowers, so it first appeared in birds and mammals as a concomitant of the development of fruits. In a very happy way the fruit-bearing plants and the animals which find their nutriment in this stored-up energy are shown alike to profit by the arrangement. Mr. Allen, in the case of the lower vertebrates, seems disposed to allow something to the direct action of the environment in the genesis of the colour-sense. Might there not be a similar direct influence at work in the case of insects and birds also?

Dealing next with the community of taste between flower-feeding and fruit-eating species, Mr Allen touches on points of considerable psychological importance. He by no means thinks that the liking for bright pure colours which characterises these two classes is a universal and necessary form of the colour-sense. As in his *Physiological Æsthetics*, so here, our author reasons as if nature were able to develop nervous structures fitted to respond pleasurably to any conceivable mode of external excitation. Thus he tells us that birds might just as well have been made to take pleasure in dingy colours as in bright ones. And he supposes that the colours of carrion which are ugly to our eyes are intrinsically pleasing to the eyes of the carnivores. Mr Allen is very firm in maintaining that the pleasure in all these cases is not due to association. It is direct and sensuous, being the result of the stimulation of the optic fibres and centres which in the case of the animals here spoken of must be conceived as of large calibre. At the same time our author allows that, since the liking for colour sprang up in connexion with life-serving actions (the pursuit of food), there would be developed "numerous nervous connexions in the central system, whereby the sight of such coloured objects might set up the necessary movements for obtaining the booty."

What does this mean, except that the impression of colour in this stage of animal existence would be accompanied by nascent impulses of prehension, &c., together with faint forms of the gustatory feelings attending these actions? It seems to me that Mr. Allen has here needlessly opposed himself to the doctrine of association. The modern associationist fully recognises that the secondary associated elements of pleasure are often inseparably bound up with the direct or primary, and that they doubtless answer to just such nervous connexions and outlets for nervous energy as our author is here obliged to assume. But whether we use the term "association" or not, the question how much of the pleasure of colour in man or in the lower animals is direct—due to the action of properly optical structures, and how much indirect and extra-optical is of the utmost importance, and I cannot think that Mr. Allen has finally settled it. Thus a good deal might be said for the proposition that the pleasurable excitement which one of the carnivores manifests at the sight of carrion is almost wholly indirect and connected with a nascent excitation of the organs employed in eating. Mr Allen allows, indeed, that in one case the indirect element may wholly preponderate over the direct, when he refers the antipathy of the turkey-cock to scarlet to "an effect of sexual jealousy, as the red would be ancestrally associated in his mind with the wattles of a rival" (p. 123). It may be added that the fact of a particular colour being very impressive and even fascinating is no proof of its being highly pleasurable. It seems to me that the writer has not sufficiently distinguished between the discriminative and the emotional side of the sensibility he is here considering. I am disposed to ask Mr. Allen to reconsider the question whether the community of taste for colour in the animal world may not be wider than he here supposes, and whether this fact does not point to certain limitations in the powers of nature with respect to the production of colour-percipient structures. Does it not seem probable, for example, that as soon as specific elements answering to the various kinds of luminous rays are evolved it remains a law of nervous organisation that the animal should prefer brilliant to dingy colours? And may one not go further and ask whether this evolution of colour-percipient structures itself was not in some way a necessary consequence of the development of optical structures discriminative of degrees of luminosity after these had reached a certain degree of delicacy? We know too little of the physiological facts of the case to answer this question, but at least it should be entertained as a possible explanation of the phenomena.

We must pass over the chapters on the supposed effects of the colour-sense on the colours of animals themselves by the play of sexual selection and the acquisition by natural selection of protective colouring, and hear what Mr. Allen has to say respecting the colour-sense in man. This section of the work, though rather short in proportion to the other sections, gives an interesting account of the probable development of the taste for colour in our race. Mr. Allen insists on the fundamental connexion of this taste with our original frugivorous habits and instincts. Children show this when they put bright coloured objects to the mouth. (By the way, do they not put other objects to the mouth quite as often as coloured ?) Next in the order of time to the taste for brilliant fruits comes the liking for flowers, feathers, precious stones, &c. As the taste develops it becomes more detached from life-serving functions and more disinterested. Mr. Allen further traces the order in which the various colours have impressed human sensibility. The taste for red is the earliest, while the feeling for green is a comparatively recent acquisition. This differs from the order assigned by Dr. Magnus, who regards the feeling for colour as following the order of the spectrum from the most energetic to the least energetic rays. Here again I think Mr. Allen argues rather hastily from impressiveness to pleasurableness. It is hardly safe, for example, to make the degree of fascination of red or yellow light for moths, &c., the measure of its pleasurable quality. In this part of his argument Mr. Allen is directly confronted with the assertion of Dr. Magnus and Mr. Gladstone that the faculty of discriminating colours is a late attainment of our species and did not exist among the Homeric Achæans, the Hebrews, or our Aryan ancestors in Asia. Our author sees that this idea is in direct opposition to the teaching of evolution, according to which much larger periods than those represented by history would be necessary for the development of a distinct faculty such as this. But not content with this *à priori* objection he seeks to refute the theory by facts, and he has gone to work in a very thorough fashion. Thus he has ascertained by means of questions sent to competent observers in all parts of the uncivilised world that existing savage races have a colour-sense identical with our own. He reasons, too, from the relics of primitive art that this faculty existed before it is said to have been wanting among the Hebrews and Achæans. Finally he seeks to account for that poverty of the colour-vocabulary among the Achæans, &c., on which Dr. Magnus and his supporters exclusively base their hypothesis, by general psychological considerations which are illustrated by an interesting examination of the colour-names employed by modern English poets. So far as I can judge, Mr. Allen proves his case most conclusively.

I trust that this brief outline of Mr. Allen's work will show that the subject was one which well deserved the elaborate monographic treatment which he has given it. The general reader who follows this interesting history of a particular sense will probably get a clearer and more serviceable idea of the doctrine of evolution and its methods of reasoning than he could obtain from wider and more systematic treatises. For the psychologist, too, this way of working out limited problems in the history of mind has a special value just now. In the present state of our science what we more particularly want is the determination of such special questions as that here handled by Mr. Allen. Such questions are easily manageable, and can be dealt with by a reference to a wide assemblage of well-ascertained facts. And their solution not only contributes new and stable propositions to the science, but serves indirectly to suggest more general principles of mental development. These desirable results will, I think, be attained by Mr. Allen's volume. Though many parts of the argument are hypothetical, he has on the whole, by means of a cumulative chain of reasoning, succeeded in establishing the wide-spread existence of the colour-sense in the animal world, and in determining some of the main features of its gradual development.

JAMES SULLY.

The Metaphysics of John Stuart Mill. By W. L. COURTNEY, M.A., Fellow of New College, Oxford. London: Kegan Paul & Co., 1879. Pp. 156.

This is an examination of Mill's chief metaphysical positions as set forth or implied in his different works, six topics being selected for discussion, namely, Consciousness, Body and Mind, Primary Qualities of Matter, Causation and Uniformity of Nature, Mathematical Axioms and Necessary Truths, General Ideas. A short introductory sketch of the historical evolution of Modern Philosophy, with a more detailed consideration of Mill's particular Antecedents, and a few words of Epilogue, make up the other contents of the volume.

The author who seems implicitly to follow Prof. Green in philosophy, does in fact aspire to substitute plain speech as regards Mill for his leader's method of innuendo. Sharing the opinion that the English mind touched its high-water-mark in philosophy a whole century ago, he seeks to make it good not by oblique hints but by showing the precise particulars in which so much later a thinker as Mill, who is thought by many and doubtless thought himself to be more advanced, falls below the level then attained by Hume: and this is clearly the right way to set to work for the spiritual good of a generation that has had the misfortune to be nurtured on Mill rather than Hume. Nor, as it happens, could the most devout believer in Mill find any fault with the tone of his present depreciator. We have here a perfectly sober attempt from one intellectual point of view to estimate the value of Mill's achievement from another; and the critic is even anxious to make plain, as far as he can, the exact nature of his own philosophical assumptions, so that the reader may fairly judge the issues of the conflict.

The interest of the first part of the work lies in the sketch of Mill's immediate antecedents. Assuming his aim to have been the rescue of mathematics and physics from the wreck of human knowledge wrought by Hume's perverse application of true experientialist principles, the author finds that he was influenced chiefly by three philosophical movements belonging to the interval that separated him from Hume—the Common Sense movement of Reid and his successors, the English Psychological movement continued after Hartley by James Mill, and the Positivist movement of Comte; while from the great German movement by which it behoved him most to have profited, he learned nothing at all. There is truth in the sketch, marked as it is by an honest desire to seize the varied features of Mill's essentially impressionable intellect, but the author seems hardly familiar enough (at first hand) with the movements that had, as he says, an effect on Mill to be able accurately to appreciate its nature and extent in the different cases. As to the fundamental assumption, no proof whatever is adduced that Mill in trying, among other things, to give a philosophical *rationale* of mathematics and physics, had Hume's solvent criticism particularly in view, or was moved by anything but a natural desire, in an age of scientific progress, to apply to the explanation of the best-organised bodies of human knowledge the theory of its origin which came down to him through his father from Hartley, Berkeley and Locke. There is an interesting statement of Mill's opinion on Hume, now first disinterred by Prof. Bain in this number of MIND (p. 377), which at first sight may be thought to lend a certain countenance to the view often expressed before that Mill set himself to do in a positive constructive spirit a work that Hume neglected for the sport of pricking the bubbles blown by metaphysicians; but the reference is to the historian rather than the philosopher, or, at all events, comes to very little, and I can find no real evidence anywhere that he ever was much influenced one way or another by Hume. That he should not, on the other hand, have been at all influenced by the Kantian movement appears remarkable only when it is forgotten what the actual conditions of philosophical thinking were in England during the whole generation when he was coming to maturity. Mill published his *Logic* in 1843 at the age of 37. After that time and that achievement he might and did add one thing or another to his acquisitions, but he was not likely to have his general philosophical view materially changed. Now what likelihood was there of his learning much about Kant or anything about Hegel in the earlier years?[1] Even Hamilton, in far more favourable circumstances, had (or shows) almost no knowledge of Hegel and a merely general knowledge of Kant. Because in the present generation any junior student, without knowing German, can make himself acquainted with the whole course of modern German philosophy we are apt to suppose that it was always so, and to judge unfavourably of Mill's range of culture which did not include such knowledge; and the mistake is the more easily made because the time of Mill's effective influence on his contemporaries was a good deal later than the appearance of his *Logic* and coincided with the period of wider and widening philosophical information. But upon any fair appreciation of the actual circumstances of Mill's intellectual development, the most there is room for is a feeling of regret that one who had such a power to influence his generation should not have been familiar with all the currents of thought that were destined to affect it. And even this regret is not unmixed with satisfaction, since the very limitations of Mill's philosophical view give it a peculiar historical value. It is well that a serious effort should once have been made to account for human knowledge and especially science from the point of view of individualistic experience. Nor is it more remarkable that this task should not have been attempted till the time when the point of view was about to become discredited than it is that the speculative spirit should have blazed up higher than ever before in Hegel after the course of modern philosophy down to Kant had consisted chiefly in a movement of more and more thorough conciliation of the two opposite principles of Reason and Experience. If Mill's Experientialism was a mere survival out of due season, what are we to say of Hegel's Rationalism?

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[1] There was indeed, already then, accessible in English the very elaborate exposition of Kant's doctrine contributed to the *Encyclopædia Londinensis* in five articles ('Kant,' 'Logic,' 'Metaphysics,' 'Moral Philosophy,' 'Philosophy') by Thomas Wirgman from 1812 to 1825; but the labours of this most enthusiastic of Kantian students are hardly more unknown to the present generation than they seem to have been unheeded by his contemporaries. Those who in recent years have succeeded at last in forcing Kant upon the attention of English readers, apparently know nothing of the heroic efforts that were vainly spent towards that end more than fifty years before. Mr. Mahaffy alone seems as yet to know of his predecessor's name: see a paper on 'Kant and his Fortunes in England,' lately contributed by him to the *Princeton Review*, where he speaks in passing of "an article in the *Encyc. Lond.* in 1821 by Wirgman, who was considered as an enthusiast about Kant"—apparently referring to the article on 'Metaphysics' (which however was published as early as 1817). This article contains a complete translation of the *Prolegomena*, much superior to the later translation by Richardson with which Mr. Mahaffy connects his own. Wirgman's exertions deserve some day to be fully acknowledged. He illustrated his various expositions (except the 'Metaphysics') with copperplate diagrams that exhibit the main doctrines of Kant's philosophy in a very striking manner.

In his critical chapters Mr. Courtney does not make many points against Mill that have not been made by others before, but his points are in general clearly and always neatly made, and the criticism may be profitably read by anybody who is disposed to think that Mill has said the last word on the topics in question. That the case for Experientialism quite breaks down when Mill's doctrine is proved defective or inconsistent is more than the author contends for. Sometimes he even, by indicating and leaving unassailed the position of later experientialists, appear to suggest that it is rather Mill's individualism that is at fault than the general philosophical attitude which so many thinkers of modern times have found themselves more and more driven to take up; but more probably the colourless references to later phases of Experientialism are to be understood rather as suggesting a measure of Mill's backwardness in relation to his age than as meaning anything in the way of approval. Remarks like that at p. 62—"So little is it true that association explains thought that the reverse is the case: it is thought which explains the possibility of association"; or like that at p. 92 (often repeated)—"Successive sensations can give rise to the conception of a succession of sensations only if there be a mind present to each sensation, holding them in due relations to one another and transforming into permanencies the perishing series of sense-impressions";—bear in reality as much against the later and wider as against the earlier and narrower interpretation of Experience. And the reply, it may at once be added, which they are most likely now-a-days to evoke from the experientialist, is simply that they must not be allowed to interfere with the work of psychological analysis, or held to be a bar to such theorising upon psychological data as Mill, to the best of his lights, essayed. Their value, ever since Kant first began to give them their current mode of expression, has lain in the warning they contain for the psychological philosopher (or philosophical psychologist) as to the full depth of the problem of knowledge. Of themselves, they give no insight. Are "sensations" to which a "mind" must be present for holding them together, mental or not-mental? If not-mental, how come they to pass into mental forms? If mental, then "mind" is already given in "sensation," and there is not anything necessary for the explanation of knowledge beyond a full enumeration of psychological factors, all equally phenomenal with (however otherwise different from) so-called bare sensation. Or at all events it is only through foregone psychological investigation, pursued in the spirit of the positive sciences, that the philosophical question can be determined. This is the true note of Experientialism late or early.

We may select as a fair specimen of Mr. Courtney's performance his discussion of Mill's view of the genesis of the notion of Extension. Here he can directly confront Mill with Hume and here he is dealing with a subject that above all others has engaged the attention of recent psychologists. On the whole, his opinion seems to be that the later psychology leaves the question very much where it was, and that Mill in particular, though fairly facing the great difficulty of transforming a succession of sensations in time into an order of co-existence in space, does in reality advance no whit beyond Hume and is rather less deft than his artful predecessor in covering up the weakness of the "sensationalist" position. Unfortunately, Mr. Courtney shows, by his remarks and references at p. 96, that he knows next to nothing of the later scientific investigations (chiefly German) which nobody should now touch the question of Space without having mastered; and even as regards Hume he betrays a certain want of intimate knowledge, or at anyrate he misses the points on which it is of real interest to make a comparison between him and Mill. Hume, he tells us, proposed to derive the idea of extension from sensations of colour but, with characteristic cleverness, turned the mere sequence of sense-impressions thus obtained into the required coexistence of coloured parts by quietly saying that the eye gives the impression of *coloured points disposed in a certain manner.* On the other hand, Mill, as we know, first urges the importance of the muscular sense in conjunction with touch for the generation of the notion of extension, but, as he thinks that we can never thus get beyond a succession of sensations in time, he would explain the element of co-existence in the case by having recourse at last to a power in the eye of taking in a manifold of sensations practically at once, the action of the ocular muscles proceeding habitually 'in a time too short for computation'. Now whatever may be said against the position thus taken up by Mill—and he certainly (as it seems to me) lays himself open to the charge of asserting something very like an original intuition of space after all—this is to be said for him, that he seeks to allow for the respective contributions of sight and touch to the genesis of the notion, that he thinks of the two as having to be somehow equated, and that he accentuates the presence of the muscular factor in both cases; and these, it must be allowed, are considerable advances beyond the position of Hume as stated by Mr. Courtney. But, in point of fact, the position of Hume is very insufficiently stated by Mr. Courtney. Hume does by no means overlook touch as equally with sight a source of the idea of extension; he does not forget that visible and tangible extension have to be equated (though he very coolly assumes that there is no difficulty in the matter—as if Berkeley had never been!); and he even signalises the psychological fact of a 'sensation of motion' (though he strangely connects it only with touch—never with sight, and labours with a most perverse ingenuity to prove it of no account for the genesis of the notion of space). Not only does Mr. Courtney tell us nothing of all this, which is just what is most interesting in any comparison of the two thinkers, but he even distorts the little he does tell when he represents Hume as saying that we obtain a "sequence" of sense-impressions by the eye—the eye which Hume so curiously thinks of only as resting. As regards Mill, I should like to add, in support of what was said before, that his discussion of the psychological question of Space in the *Examination* and of the corresponding philosophical question in the *Logic* affords very conclusive evidence to my mind that he was quite unfamiliar with the remarkable discussion of the ideas of Space and Time filling Part II. of Hume's *Treatise*. Surely he could never have passed this by in total silence, if his object had been, as we are told by the Oxford critics, to save mathematical science from Hume's devouring maw.[1]

Mr. Courtney fancies he has discovered a radical inconsistency between Mill's positions in the *Examination* and in the *Logic*. "The fact is," says he (p. 79) "that Mill as an inductive logician supposes that phenomena (objective facts) are immediately cognised by us, while Mill as a psychologist, a critic of Hamilton and a metaphysician, supposes that phenomena, the facts as immediately cognised by us, are mere subjective presentations"; and he says so more particularly because of remarks like this, which to his "amazement" he reads in the

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[1] In the *Autobiography*, p. 69, he mentions only the *Essays* (*i.e.*, the *Inquiry*) among his philosophical reading; and it is not the *Inquiry*, with its passing reference to Mathematics in a single paragraph, that can have set him (though it set Kant from another point of view) upon defending the reality of mathematical science. On the whole, in the absence of external evidence, it might be doubted, upon the internal evidence, whether Mill ever read the *Treatise*.

Logic—'Propositions are not assertions respecting our ideas of things, but assertions respecting the things themselves'. Others in their turn may be amazed, after all the discussion that has gone on of late respecting 'material' or 'matter-of-fact' logic, that a statement like this of Mill's should not be held to be perfectly reconcilable with a sort of idealism: over and over again the 'matter-of-fact' logicians have declared that, in dealing with facts and things regarded as objective, they mean to prejudice in no way the ulterior metaphysical question. But it is more to the point to remind his critic that Mill himself knew perfectly well what he was about in speaking, as a logician, of 'facts' and 'things'; see the passage at the very beginning of the *Logic* (Bk. I. 2, 1): 'When I say, The sun is the cause of day, . . . I mean that a certain physical fact, which is called the sun's presence (*and which in the ultimate analysis resolves itself into sensations, not ideas*), causes &c.' And the important chapter 3, 'Of the Things denoted by Names,' which until the *Examination* appeared was Mill's chief contribution to metaphysical theory (but which, by the way, Mr. Courtney hardly touches), surely does not err in the direction of Realism.

As a last remark, it may be noted that Mr. Courtney is rather apt, considering the size of his work, to run away from his subject or to come up to it only after a deal of galloping through the centuries of philosophical thinking; and his statements when he is at the gallop are apt to be looser than they need be. The "two centuries from Descartes to Hegel" (p. 2) were not two, and there is considerable vagueness in the author's next following reference to a "period commencing in the sixteenth century and ending in the eighteenth," whether he means it or not to be same as the "two centuries" just before mentioned. On p. 4, Leibnitz is oddly made to follow upon Hume; and what is meant by the "endless analysis of Wolff"? There is a three-page history of the doctrine of Universals in Chap. ix. that might be more accurate; and even the occasional references to particular thinkers are not so precise as they should have been if they were to be made at all. Here is one (p. 115):—"Kant denied the Power of the individual Self over Volition and Action, and in that sense denied Free Will to the Ego; on the other hand, Free Will, as shown in Morality, is brought back again". When Kant, in Mr. Courtney's phrase, "brought back again" Free Will, was it not to an "individual Self" that he ascribed it? The assertion is led up to through some other sentences, but they do nothing to mend it.

EDITOR.

Logik. Von Dr. CHRISTOPH SIGWART, o.ö. Professor der Philosophie an der Universität Tübingen. 2ter Band. 'Die Methodenlehre'. Tübingen: Laupp, 1878. Pp. 612.

This is the continuation and completion of Sigwart's elaborate work on Logic. Those who have seen the former volume published some years ago will know his general philosophic position and method of viewing his subject. It is not easy to convey an idea on these points to the English reader, but perhaps if we were to call him Kantian, though he is at issue with Kant on many points, we should mislead less than by using any other familiar designation. The subject of the present volume being Methodology, it is of course concerned with objective laws of nature in great part, rather than with necessities of thought. But though the wine is both new and good, there is a sort of flavour of the old bottle about it. The language is thoroughly conceptualist, and it is always the concept, the *Begriff*, to which we are introduced, and in terms of which the discussion is carried on.

The general aims of the work, in other words, the subject-matter of Methodology, are set before us under the two following heads :—(1) To obtain thoroughly determinate *ideas*, which shall be strictly correspondent with one another in the minds of all thinking persons, and (2) to obtain well-grounded *judgments*, taking care to distinguish between those which are ultimate and those which are derived.

The object-world to which the rules of this Methodology are to be applied is of course the great complex of all phenomena, viewed actually and historically. But in viewing it we come at once to one of those characteristics which so strongly mark off Sigwart's mode of treatment from that of nearly all the principal English writers. In order to carry out the aims of Methodology we need certain postulates : such as that there shall be an orderly arrangement of classes of things into genera, species, and so on ; and also a strict and necessary causal connexion amongst successive events. Whilst denying of course that the ground of these is to be sought in experience, and equally denying that they are necessities of thought in the ordinary signification, he still assigns them a sort of *à priori* origin. But it is one of an *ethical* rather than a purely intellectual character. These aims in fact correspond strictly to an ethical "end"; we must accept them because through them only can the strivings of our intellectual nature find satisfaction.

Time and Space have their traditional priority. The first things, however, to be submitted to analysis are the elements of Number. Sigwart criticises the empirical view that these arise through abstractions from the characteristics of external objects. "Four things" do not necessarily present themselves as four; it is we who put that into them : they may equally be regarded either as "four," or as a unity, *viz.*, as "one". Number arises therefore from the conscious activity of the mind. It may be first suggested and illustrated by material objects; but the felt power of perfectly indefinite progression independently of corresponding objects seems to show that we are here creating for ourselves. In this sense it may be termed *à priori*. In regard to "Space-concepts," the analysis of their origin is somewhat similar to the above; and at many points reminds us of Kant. Whereas number is consciously produced, the intuition of space is presupposed in the representation of an external world. The logical question therefore is this :—How do we from the general intuition of space, get at our logically perfect space-concepts, and what are their elements? Sigwart is largely occupied here with the origin of the notion of a straight line, and its extreme geometrical importance. How could it be got from experience, nature being so sparing in its production? The point certainly deserves notice. The pure empiricist would I suppose, reply that, admitting the extreme scarcity of straight lines in undisturbed nature, yet, if experience be measured, so to say, by its weight rather than its volume, we find a great deal of them. The first dawn of savage intelligence directs attention to the properties of straight reeds for arrows, of sinews for strings, of tropical creeping stems for everything which needs to be tied or pulled. Sigwart's explanation is found in the fact, whatever its ultimate psychological explanation, that the straight line is the path upon which our representation of external objects is projected or externally localised: it is "the line of sight".

Similar investigations are then devoted to the consideration of Time and Motion. He maintains of these, as of Space, that although our first presentations of them are obtained empirically (this puts a distinction between them and Number), determinate or accurate concepts of them cannot be obtained by sensible impression or abstraction, but only by our own mental activities, that is, by conscious reconstruction of what is given to us.

Then follows some discussion about our simple sensations, and what can be done with them in the way of measurement and fixation. He points out how, from their variable and indeterminate nature, we are obliged, wherever possible, to substitute for any direct measurement of them (such as Fechner tried) some indirect appeal to external phenomena: as, for instance, the expansion of mercury in a thermometer is substituted for our direct sensations of heat and cold. But we really have to assume in these cases that we are measuring the sensations of a normal or average sensitive frame.

The rest of this elementary part is devoted mainly to the consideration of the ultimate nature of the Causal tie and that of Substance. With regard to the latter, he criticises at some length the empirical view that the "thing" is nothing, in the last resort, but a combination of various sensations bound together by associations; maintaining that "there is a synthesis present which cannot be explained by help of any sense-factors, but rests in the last resort upon an original function or activity by virtue of which we combine the perceptions of the various senses in order to fashion them into the shape of an object in space". (It may be remarked that here and elsewhere throughout this volume his references are always to that form of the Empirical Philosophy which confines its appeal to the individual experience. Mill is very frequently quoted and criticised, and likewise Bain, but there is not, I think I may say, a single reference throughout to Mr. Herbert Spencer or his system of philosophical explanation.)

In general consistency with the above view is Sigwart's view of Causation. His treatment is not so much under the wider logical aspect of regularity, as under that narrower aspect of efficiency, upon which the popular mind generally, and most philosophers formerly, laid

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—MR. MAX MÜLLER AND FETISHISM.

What is the true place of Fetishism, to use a common but unscientific term, in the history of religious evolution? Some theorists have made Fetishism, that is to say, the adoration of odds and ends (with which they have confused the worship of animals, of mountains, and even of the earth), the first moment in the development of worship. Others again think that Fetishism is " a corruption of religion, in Africa, as elsewhere ". The latter is the opinion of Mr. Max Müller, who has stated it in his *Hibbert Lectures* on " The Origin and Growth of Religion, especially as illustrated by the Religions of India ". It seems probable that there is a middle position between these two extremes. Students may hold that we hardly know enough to justify us in talking about the *origin* of religion, while at the same time they may believe that Fetishism is one of the earliest traceable steps by which men climbed to higher conceptions of the supernatural. Meanwhile Mr. Max Müller supports his own theory, that Fetishism is a "parasitical growth," a " corruption" of religion, by arguments mainly drawn from historical study of savage creeds, and from the ancient religious documents of India. These documents are to English investigators ignorant of Sanskrit " a book sealed with seven seals ". The Vedas are interpreted in very different ways by different Oriental scholars. Mr. Max Müller's rendering is certain to have the first claim on English readers, and therefore it is desirable to investigate the conclusions which he draws from his Vedic studies. The ordinary anthropologist must first, however, lodge a protest against the tendency to look for *primitive* matter in the Vedas. They are the elaborate hymns of a specially trained set of poets and philosophers, living in an age almost of civilisation. They can therefore contain little testimony as to what man while still "primitive" thought about God, the world and the soul. One might as well look for the first germs of religion, for *primitive* religion strictly so called, in the Good Friday articles of the *Daily Telegraph* as in the Vedas. It is chiefly, however, by way of deductions from the Vedas, that Mr. Max Müller arrives at ideas which may be briefly and broadly stated thus: he inclines to derive religion from man's sense of the Infinite, as awakened by natural objects calculated to stir that sense. Our position is, on the other hand, that the germs of the religious sense in early man are developed, not so much by the vision of the Infinite, as by the idea of Power. Early religions, in short, are selfish, not disinterested. The worshipper is not contemplative, so much as eager to gain something to his advantage. In fetishes, he ignorantly recognises something that possesses power of an abnormal sort, and the train of ideas which leads him to believe in and to treasure fetishes is one among the earliest springs of religious belief. Mr. Müller's opinion is the very reverse: he believes that a contemplative and disinterested emotion in the presence of the infinite, or of anything that suggests infinitude or is mistaken for the infinite, begets human religion, while of this religion Fetishism is a corruption.

In treating of Fetishism Mr. Müller is obliged to criticise the system of De Brosses, who introduced this rather unfortunate term to science, in an admirable work, *Le Culte des Dieux Fétiches* (1760). We call the work "admirable," because, considering the contemporary state of knowledge and speculation, De Brosses's book is brilliant, original, and only now and then rash or confused. Mr. Müller says that De Brosses "holds that all nations had to begin with fetishism, to be followed afterwards by polytheism and monotheism". This sentence would lead some readers to suppose that De Brosses, in his speculations, was looking for the origin of religion; but, in reality, his work is a mere attempt to explain a certain element in ancient religion and mythology. De Brosses was well aware that heathen religions were a complex mass, a concretion of many materials. He admits the existence of regard for the spirits of the dead as one factor, he gives Sabaeism a place as another. But what chiefly puzzles him, and what he chiefly tries to explain, is the worship of odds and ends of rubbish, the adoration of animals, mountains, trees, the sun, and so forth. When he masses all these worships together, and proposes to call them all Fetishism (a term derived from the Portuguese word for a talisman), De Brosses is distinctly unscientific. But when he attempts to explain the animal worship of Egypt, and the respect paid by Greeks and Romans to shapeless stones, as survivals of older savage practices, De Brosses is distinctly scientific.

The position of De Brosses is this: Old mythology and religion are a tissue of many threads. Sabaeism, adoration of the dead, mythopœic fancy, have their part in the fabric. Among many tribes, a form of theism, Islamite or Christian, or self-developed, is superimposed on a mass of earlier superstitions. Among these superstitions, is the worship of animals and plants, and the cult of rough stones and of odds and ends of matter. What is the origin of this element, so prominent in the religion of Egypt, and present, if less conspicuous, in the most ancient temples of Greece? It is the survival, answers De Brosses, of ancient practices like those of untutored peoples, as Brazilians, Samoyedes, Negroes, whom the Egyptians and Pelasgians once resembled in lack of culture.

This, briefly stated, is the hypothesis of De Brosses. If he had possessed our wider information, he would have known that, among savage races, the worships of the stars, of the dead, and of plants and animals, are interlaced by the strange metaphysical processes of wild men. He would, perhaps, have kept the supernatural element in magical stones, feathers, shells, and so on, apart from the triple thread of Sabaeism, ghost-worship, and Totemism, with its later development into the regular worship of plants and animals. It must be recognised however, that De Brosses was perfectly well aware of the confused and manifold character of early religion. He had a clear view of the truth that what the religious instinct has once grasped, it does not, as a rule, abandon, but subordinates or disguises when it reaches higher ideas. And he avers, again and again, that men laid hold of the coarser and more material objects of worship, while they themselves were coarse and dull, and that, as civilisation advanced, they, as a rule, subordinated and disguised the ruder factors in their system. Here it is that Mr. Max Müller differs from De Brosses. He holds that the adoration of stones, feathers, shells, and (as I understand him) the worship of animals are, even among the races of Africa, a corruption of a higher religion, a "parasitical development" of religion.

However, Mr. Max Müller himself held "for a long time" what he calls "De Brosses's theory of fetishism". What made him throw the theory overboard? It was "the fact that, while in the earliest accessible documents of religious thought we look in vain for any very clear traces of fetishism, they become more and more frequent everywhere in the later stages of religious development, and are certainly more visible in the later corruptions of the Indian religion, beginning with the Âtharva*n*a, than in the earliest hymns of the Rig-Veda". Now, by the earliest documents of religious thought, Professor Max Müller means the hymns of the Rig-Veda. These hymns are composed in the most elaborate metre, by sages of old repute, who, I presume, occupied a position not unlike that of the singers and seers of Israel. They lived in an age of tolerably advanced cultivation. They had wide geographical knowledge. They had settled government. They had wealth of gold, of grain, and of domesticated animals. Among the metals, they were acquainted with that which, in most countries, has been the latest worked—they used iron poles in their chariots. How then can the hymns of the most enlightened singers of a race thus far developed, be called "the earliest religious documents"? Oldest they may be, but that is a very different thing. How can we possibly argue that what is absent in these hymns, is absent because it had not yet come into existence? Is it not the very office of *pii vates et Phoebo digna locuti* to purify religion, to cover up decently its rude shapes, as the unhewn stone was concealed in the fane of Apollo of Delos? If the race whose noblest and oldest extant hymns were pure, exhibits traces of fetishism in its later documents, may not that as easily result from a recrudescence as from a corruption? Professor Max Müller has still to explain how the process of corruption which introduced the same fetishistic practices among Samoyeds, Brazilians, Negroes and the people of the Âtharva*n*a Veda came to be everywhere identical.

We have been occupied, perhaps, too long with De Brosses. Let us now examine, as shortly as possible, Mr. Max Müller's reasons for denying that Fetishism is "a primitive form of religion". The negative side of his argument being thus disposed of, it will then be our business to consider (1) his psychological theory of the subjective element in religion and (2) his account of the growth of Indian religion. The conclusion of the essay will be concerned with demonstrating that Mr. Max Müller's system assigns little or no place to the superstitious beliefs without which, in other countries than India, Society could not have come into organised existence.

In his polemic against Fetishism, it is not always very easy to see against whom Mr. Müller is contending. It is one thing to say that fetishism is a "primitive form of religion," and quite another to say that it is "the very beginning of all religion". Occasionally he attacks the "Comtian theory," which, I think, is not now held by many people who study the history of man, and which I am not concerned to defend. He says that the Portuguese navigators who discovered among the negroes "no other trace of any religious worship" except what they called the worship of *feitiços*, concluded that this was the whole of the religion of the negroes (p. 61). Mr. Müller then goes on to prove that "no religion consists of fetishism only," choosing his example of higher elements in negro religion from the collections of Waitz. It is difficult to see what bearing this has on his argument. De Brosses (p. 20) shews that *he*, at least, was well aware that many negro tribes have higher conceptions of the Deity, than any which are implied in fetish-worship. Even if no tribe in the world is exclusively devoted to fetishes, the argument makes no progress. Perhaps no tribe is in the way of using unpolished stone weapons and no others, but it does not follow that unpolished stone weapons are not primitive. It is just as easy to maintain that the purer ideas have, by this time, been reached by aid of the stepping stones of the grosser, as that the grosser are the corruption of the purer. Mr. Max Müller constantly asserts that the "human mind advanced by small and timid steps from what is intelligible, to what is at first sight almost beyond comprehension" (p. 126). Among the objects which aided man to take these small and timid steps, he reckons rivers and trees, which excited, he says, religious awe. What he will not suppose is that the earliest small and timid steps were not unaided by such objects as the fetishist treasures—stones, shells, and so forth, which suggest no idea of infinity. Stocks he will admit, but not, if he can help it, stones, of the sort that negroes and Kanekas and other tribes use as fetishes. The reason is, that he cannot see how the scraps of the fetishist can appeal to the feeling of the Infinite, which feeling is, in his theory, the basis of religion.

After maintaining (what is readily granted) that negroes have a religion composed of many elements, Mr. Müller tries to discredit the evidence about the creeds of savages, and discourses on the many minute shades of progress which exist among tribes too often lumped together as if they were all in the same condition. Here he will have all students of savage life on his side. It remains true, however, that certain elements of savage practice, fetishism being one of them, are practically ubiquitous. Thus, when Mr. Müller speaks of "the influence of public opinion" in biassing the narrative of travellers, we must not forget that the strongest evidence about savage practice is derived from the "undesigned coincidence" of testimony.

"Illiterate men, ignorant of the writings of each other, bring the same reports from various quarters of the globe," wrote Millar of Glasgow. When sailors, merchants, missionaries describe, as matters unprecedented and unheard of, such institutions as polyandry, totemism, and so forth, the evidence is so strong, because the witnesses are so astonished. They do not know that any one but themselves has ever noticed the curious facts before their eyes. And when Mr. Müller tries to make the testimony about savage faith still more untrustworthy, by talking of the "absence of recognised authority among savages," do not let us forget that custom (νόμος) is a recognised authority, and that the punishment of death is inflicted for transgression of of certain rules. These rules, generally speaking, are of a religious nature, and the religion to which they testify, is of the sort known (too vaguely) as "fetishistic". Let us keep steadily before our minds, when people talk of lack of evidence, that we have two of the strongest sorts of evidence in the world for the kind of religion which least suits Mr. Müller's argument—(1) the undesigned coincidence of testimony, (2) the irrefutable witness of elementary criminal law. Mr. Müller's own evidence is that much-disputed work, where "all men see what they want to see, as in the clouds," and where many see systematised fetishism,—the Veda.

The first step in Mr. Max Müller's polemic, was the assertion that Fetishism is nowhere unmixed. We have seen that the fact is capable of an interpretation that will suit either side. Stages of culture overlap each other. The second step in his polemic was the effort to damage the evidence. We have seen that we have as good evidence as can be desired. In the third place he asks, What are the antecedents of fetish worship? He appears to conceive himself to be arguing with persons (p. 127) who "have taken for granted that every human being was miraculously endowed with the concept of what forms the predicate of every fetish, call it power, spirit, or god". If there are reasoners so feeble, they must be left to the punishment inflicted by Mr. Müller. On the other hand, students who regard the growth of the idea of power, which is the predicate of every fetish, as a slow process, as the result of various impressions and trains of early half conscious reasoning, cannot be disposed of by the charge that they think that "every human being was miraculously endowed" with any concept whatever. They, at least, will agree with Mr. Max Müller that there are fetishes and fetishes, that to one reverence is assigned for one reason, to another for another. Unfortunately, it is less easy to admit that Mr. Max Müller has been happy in his choice of ancient instances. He writes (p. 99): "Sometimes a stock or a stone was worshipped because it was a forsaken altar or an ancient place of judgment, sometimes because it marked the place of a great battle or a murder, or the burial of a king." Here he refers to Pausanias, Book I. 28, 5, and VIII. 13, 3.[1] In both of these passages, Pausanias mentions stones—in the first passage stones on which men stood *ὅσοι δίκας ὑπέχουσι καὶ οἱ διώκοντες*, in the second, barrows heaped up in honour of men who fell in battle. In neither case, however, do I find anything to shew that the stones were worshipped. These stones have no more to do with the argument than the milestones which certainly do exist on the Dover road, but which are not the objects of superstitious reverence. No! the fetish stones of Greece were those which occupied the holy of holies of the most ancient temples, the mysterious fanes within dark cedar or cypress groves, to which men were hardly admitted. They were the stones and blocks which bore the names of gods, Hera, or Apollo, names which were given, as De Brosses says, to the old fetishistic objects of worship, *after* the anthropomorphic gods entered Hellas. This, at least, is the natural conclusion from the fact that the Apollo and Hera of untouched wood or stone were confessedly the *oldest*. Religion, possessing an old fetish, did not run the risk of breaking the run of luck by discarding it, but wisely retained and renamed it. Mr. Max Müller says that the unhewn lump may indicate a higher power of abstraction than the worship paid to the work of Phidias; but in that case all the savage adorers of rough stones *may* be in a stage of more abstract thought than these contemporaries of Phidias who had such very hard work to make Greek thought abstract.

Mr. Müller founds a very curious argument on what he calls "the ubiquity of fetishism". Like De Brosses, he compiles (from Pausanias) a list of the rude stones worshipped by the early Greeks. He mentions various examples of fetishistic superstitions in Rome. He detects the fetishism of popular Catholicism, and of Russian orthodoxy among the peasants. Here, he cries, in religions the history of which is known to us, fetishism is secondary, "and why should fetishes in Africa, where we do not know the earlier development of religion, be considered as primary"? What a singular argument! According to Pausanias, this fetishism (if fetishism it is) *was* primary, in Greece. The *oldest* temples, in their holiest place, held the fetish. In Rome, it is at least probable that fetishism, as in Greece, was partly a survival, partly a new growth from the primal root of human superstitions. As to Catholicism, the records of Councils, the invectives of the Church, shew us that, from the beginning, the secondary religion in point of time, the religion of the Church, laboured vainly to suppress, and had in part to tolerate, the primary religion of childish superstitions. The documents are before the world. As to the Russians, the history of their conversion is pretty well known. Jaroslaf, or Vladimir, or some other evangelist, had whole villages baptised in groups, and the pagan peasants naturally kept up their semi-savage ways of thought and worship, under the thinnest varnish of orthodoxy. In all Mr. Max Müller's examples, then, fetishism turns out to be *primary* in point of time; *secondary* only, as subordinate to some later development, or lately superimposed religion. Accepting his statement that fetishism is ubiquitous, we have the most powerful *à priori* argument that it is primitive. As religions become developed they are differentiated: it is only fetishism that you find everywhere.. Thus the bow and arrow have a wide range of distribution; the musket, one not so wide; the Martini-Henry rifle, a still narrower range: it is the primitive stone weapons that are ubiquitous, that are found in the soil of England, Egypt, America, France, Greece, as in the hands of Dieyries and Admiralty Islanders. And just as rough stone knives are earlier than iron ones (though the same race often uses both), so fetishism is more primitive than higher and purer faiths, though the same race often combines fetishism and theism. No one will doubt the truth of this where weapons are concerned; but Mr. Max Müller will not look at religion in this way.

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[1] A third reference to Pausanias, I have been unable to verify. There are several references to Greek fetish stones in Theophrastus's account of the Superstitious Man.

Mr. Max Muller's remarks on "Zoolatry," as De Brosses calls it, or animal worship, require only the briefest comment. De Brosses, very unluckily, confused zoolatry with other superstitions under the head of Fetishism. This was unscientific; but is it scientific of Mr. Max Müller to discuss animal worship without reference to Totemism? The worship of sacred animals is found, in every part of the globe, to be part of the sanction of the most stringent and important of all laws, the laws of marriage. It is a historical truth that the society of Ashantees, Choctaws, Australians, is actually constructed by the operation of laws which are under the sanction of various sacred plants and animals. There is scarcely a race so barbarous that these laws are not traceable at work in its society, nor a people (especially an ancient people) so cultivated that its laws and religion are not full of strange facts most easily explained as relics of totemism. Now note that actual living totemism is always combined with the rudest ideas of marriage, with almost repulsive ideas about the family. Presumably, this rudeness is earlier than culture, and therefore this form of animal worship is one of the earliest religions that we know. The almost limitless distribution of the phenomena, their regular development, their gradual disappearance, all point to the fact that they are everywhere produced by similar causes.

Of all these facts, Mr. Max Müller only mentions one—that many races have called themselves Snakes, and he thinks they might naturally adopt the snake for ancestor, and finally for god. He quotes the remark of Diodorus that "the snake may either have been made a god because he was figured on the banners, or may have been figured on the banners because he was a god"; to which De Brosses, with his usual sense, rejoins—"we represent saints on our banners because we revere them, we do not revere them because we represent them on our banners."

In a discussion about origins, and about the corruption of religion, it would have been well to account for institutions and beliefs almost universally distributed. We know, what De Brosses did not, that zoolatry is inextricably blent with laws and customs which surely must be early, if not primitive, because they make the working faith of societies in which male descent and the Family are not yet established. Any one who wishes to prove that this sort of society is a late corruption, not an early stage in evolution towards better things, has a difficult task before him, which, however, he must undertake, before he can prove zoolatry to be a corruption of religion.

As to the worship of ancestral and embodied human spirits, which (it has been so plausibly argued) is the first moment in religion, Mr. Max Müller dismisses it, here, in eleven lines and a half. An isolated but important allusion at the close of his lectures will be noticed in its place.

The end of the polemic against the primitiveness of fetishism deals with the question, "Whence comes the supernatural predicate of the fetish"? If a negro tells us his fetish is a god, whence got he the idea of "god"? Many obvious answers occur. Mr. Müller says, speaking of the Indians (p. 205): "The concept of *gods* was no doubt growing up, while men were assuming a more and more definite attitude towards these semi-tangible and intangible objects"—trees, rivers, hills, the sky, the sun, and so on which he thinks suggested and developed, by aid of a kind of awe, the religious feeling of the infinite. We too would say that, among people who adore fetishes and ghosts, the concept of gods no doubt silently grew up, as men assumed a more and more definite attitude towards those tangible and intangible objects. Again, negroes have had the idea of god imported among them by Christians and Islamites, so that, even if they did not climb (as De Brosses grants that many of them do) to purer religious ideas unaided, these ideas are now familiar to them, and may well be used by them, when they have to explain a fetish to a European. Mr. Max Müller explains the origin of religion by a term ("the Infinite") which, he admits, the early people would not have comprehended. The negro, if he tells a white man that a fetish is a god, transposes terms in the same unscientific way. Mr. Müller asks, "How do these people, when they have picked up their stone or their shell, pick up, at the same time, the concepts of a supernatural power, of spirit, of god, and of worship paid to some unseen being"? But who says that men picked up these ideas *at the same time?* These ideas were evolved by a long, slow, complicated process. It is not at all impossible that the idea of a kind of "luck" attached to this or that object, was evolved by dint of meditating on a mere series of lucky accidents. Such or such a man, having found such an object, succeeded in hunting, fishing, or war. By degrees, similar objects might be believed to command success. Thus burglars carry bits of coal in their pockets, "for luck". This random way of connecting causes and effects which have really no inter-relation, is a common error of early reasoning. Mr. Max Müller says that "this process of reasoning is far more in accordance with modern thought"; if so, modern thought has little to be proud of. But there are many other practical ways in which the idea of supernatural power is attached to fetishes. Some fetish stones have a superficial resemblance to other objects, and thus (on the magical system of reasoning) are thought to influence these objects. Others, again, are pointed out as worthy of regard in dreams or by the ghosts of the dead.[1] To hold these views of the origin of the supernatural predicate of fetishes is not "to take for granted that every human being was miraculously endowed with the concept of what forms the predicate of every fetish".

Thus we need not be convinced by Mr. Max Müller that fetishism (though it necessarily has its antecedents in the human mind) is "a corruption of religion". It still appears to be one of the most primitive steps towards the idea of the supernatural.

What, then, is the subjective element of religion in man? How is he capable of conceiving of the supernatural? What outward objects first awoke that dormant faculty in his breast? Mr. Max Müller answers, that man has "the faculty of apprehending the infinite"—that by dint of this faculty he is capable of religion and that sensible objects, "tangible, semi-tangible, intangible," first roused the faculty to religious activity, at least among the natives of India. He means, however, by the "infinite" which savages apprehend, not our metaphysical conception of the infinite, but the mere impression that there is "something beyond". "Every thing of which his senses cannot perceive a limit, is to a primitive savage or to any man in an early stage of intellectual activity *unlimited* or *infinite*." Thus, in all experience, the idea of "a beyond" is forced on men. If Mr. Max Müller would adhere to this theory, then we should suppose him to mean (what we hold to be more or less true) that savage religion, like savage science, is merely a fanciful explanation of what lies beyond the verge of experience. For example, if the Australians mentioned by Mr. Max Müller believe in a being who created the world, a being whom they do not worship, and to whom they pay no regard, their theory is scientific, not religious. They have looked for the causes of things, and are no more religious (in so doing) than Newton was when he worked out his theory of gravitation. The term "infinite" is wrongly applied, because it is a term of advanced thought used in explanation of the ideas of men who, Mr. Max Müller says, were incapable of conceiving the meaning of such a term. Again, it is wrongly applied, because it has some modern religious associations, which are covertly and mischievously introduced to explain the supposed emotions of early men. Thus, Mr. Müller says (p. 177)—he is giving his account of the material things that awoke the religious faculty—"the mere sight of the torrent or the stream would have been enough to call forth in the hearts of the early dwellers on the earth . . . a feeling that they were surrounded on all sides by powers invisible, infinite, or divine". Here, if I understand Mr. Müller, "infinite" is used in our modern sense. The question is, How did men ever come to believe in powers infinite, invisible, divine? If Mr. Müller's words mean anything, they mean that a dormant feeling that there were such existences lay in the breast of man, and was wakened into active and conscious life, by the sight of a torrent or a stream. If this is not the expression of a theory of "innate religion" (a theory which Mr. Müller disclaims), it is capable of being mistaken for that doctrine by even a careful reader. The feeling of "powers, infinite, invisible, divine," *must* be in the heart, or the mere sight of a river could not call it forth. How did the feeling get into the heart? That is the question.

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[1] Here I may mention a case illustrating the motives of the fetish-worshipper. My friend, Mr J. J. Atkinson, who has for many years studied the manners of the people of New Caledonia, asked a native *why* he treasured a certain fetish-stone. The man replied that, in one of the vigils which are practised beside the corpses of deceased friends, he saw a lizard. The lizard is a totem, a worshipful animal in New Caledonia. The native put out his hand to touch it, when it disappeared and left a stone in its place. This stone he therefore held sacred in the highest degree. Here then a fetish stone was indicated as such by a spirit in form of a lizard.

The ordinary anthropologist distinguishes a multitude of causes, a variety of processes, which shade into each other and gradually produce the belief in powers invisible, infinite, and divine. What tribe is unacquainted with dreams, visions, magic, the apparitions of the dead? Add to these the slow action of thought, the conjectural inferences, the guesses of crude metaphysics, the theories of isolated men of religious and speculative genius. By all these and other forces manifold, that emotion of awe in presence of the hills, the stars, the sea, is developed. Mr. Max Müller cuts the matter shorter. The early inhabitants of earth saw a river, and the "mere sight" of the torrent called forth the feelings which (to us) seem to demand ages of the operation of causes disregarded by Mr. Müller in his account of the origin of Indian religion.

The central spring of Mr. Müller's doctrine is his theory about "apprehending the infinite". Early religion, or at least that of India, was, in his view, the extension of an idea of Vastness, a disinterested emotion of awe. Elsewhere, we think, early religion has been a development of ideas of Force, an interested search, not for something wide and far and hard to conceive, but for something practically *strong* for good and evil. Mr. Müller (taking no count in this place of fetishes, ghosts, dreams and magic) explains that the sense of "wonderment" was wakened by objects only semi-tangible, trees, which are *taller* than we are, "whose roots are beyond our reach and which have a kind of life in them". "We are dealing with a quaternary, it may be a tertiary troglodyte," says Mr. Müller. If a tertiary Troglodyte was like a modern Andaman islander, a Kaneka, a Dieyrie, would he stand and meditate in awe on the fact that a tree was taller than he, or had a "kind of life," "an unknown and unknowable, yet undeniable something"? Why, this is the sentiment of modern Germany, and perhaps of the Indian sages of a cultivated period! A troglodyte would look for a 'possum in the tree, he would tap the trunk for honey, he would poke about in the bark after grubs. Does Mr. Müller really not see that he is transporting a kind of modern malady of thought into the midst of people who wanted to find a dinner, and who might worship a tree if it had a grotesque shape, that, for them, had a magical meaning, or if *boilyas* lived in its boughs, but whose practical way of dealing with the problem of its life was to burn it round the stem, chop the charred wood with stone axes, and use the bark, branches and leaves as they happened to come handy.

Mr. Müller has a long list of semi-tangible objects "overwhelming and overawing," like the tree. There are mountains, where "even a stout heart shivers before the real presence of the infinite;" there are rivers, those instruments of so sudden a religious awakening; there is earth. These supply the material for semi-deities. Then come sky, stars, dawn, sun, and moon: "in these we have the germs of what, hereafter, we shall have to call by the name of deities".

Before we can transmute, with Mr. Müller, these objects of a somewhat vague religious regard into a kind of gods, we have to adopt Noiré's philological theories, and study the effects of auxiliary verbs on the development of personifications and of religion. Noiré's philological theories are still, I presume, under discussion. They are necessary, however, to Mr. Müller's doctrine of the development of the vague "sense of the infinite" (wakened by fine old trees, and high mountains) into *devas*, and of *devas* (which means "shining ones") into the Vedic Gods. Our troglodyte ancestors, and their feeling for the spiritual aspect of landscape, are thus brought into relation with the Rishis of the Vedas, the sages and poets of a pleasing civilisation. The reverence felt for such comparatively refined or remote things, as fire, the sun, wind, thunder, the dawn, furnished a series of stepping-stones to the Vedic theology, if theology it can be called. It is impossible to give each step in detail; the process must be studied in Mr. Müller's lectures. Nor can we discuss the later changes of faith. As to that which produced the fetishistic "corruption" (that universal and everywhere identical form of decay), Mr. Müller does not afford even a hint. He only says that, when the Indians found that their old gods were mere names, "they built out of the scattered bricks a new altar to the Unknown God"—a statement which throws no light on the parasitical development of Fetishism.

We have contested step by step, many of Mr. Müller's propositions. If space permitted, it would be interesting to examine the actual attitude of certain contemporary savages, Bushmen and others, to the sun. Contemporary savages may be degraded, they certainly are not primitive, but their *legends,* at least, are the oldest things they possess. The supernatural elements in their ideas about the sun are curiously unlike those which, according to Mr. Müller, entered into the development of Aryan religion.

The last remark which has to be made about Mr. Müller's scheme of the development of Aryan religion is that the religion does not apparently aid the growth of society, nor work with it in any way. Let us look at a sub-barbaric society—say that of Zulu-land, of New Zealand, of the Iroquois League, or a savage society like that of the Kanekas, or of those Australian tribes of whom Mr. Brough Smyth has furnished us with an interesting and copious account. If we begin with the Australians, we observe that society is based on certain laws of marriage enforced by capital punishment. These laws of marriage forbid the intermixing of persons belonging to the stock which worships this or that animal, or plant. Now this rule, as already observed, *made* the "gentile" system, (as Mr. Morgan erroneously calls it), the system which gradually reduces tribal hostility, by making tribes homogeneous. The system (with the religious sanction of a kind of zoolatry) is in force in Africa, America, and Australia, while a host of minute facts make it a reasonable conclusion that it prevailed in Asia and Europe. Among these facts certain peculiarities of Greek and Roman and Hindoo marriage law, Greek, Latin, and English tribal names, and a crowd of legends are the most prominent. Mr. Max Müller's doctrine of the development of Indian religion (while admitting the existence of Snake or Naga tribes) takes no account of the action of this universal zoolatry on society.

After marriage and after tribal institutions, look at *rank*. Is it not obvious that the religious elements left out of his reckoning by Mr. Müller are most powerful in developing rank? Even among those democratic paupers, the Fuegians, "the doctor-wizard of each party has much influence over his companions". Among those other democrats, the Eskimo, a class of wizards, called Angakuts, become "a kind of civil magistrates," because they can cause fine weather, and can magically detect people who commit offences. Thus the germs of rank, in these cases, are sown by the magic which is the practical working of Fetishism. Try the Zulus: "the heaven is the chief's," he can call up clouds and storms, hence the sanction of his authority. In New Zealand, every Rangatira has a supernatural power. If he touches an article, no one else dares to appropriate it, for fear of terrible supernatural consequences. A head chief is "tapued an inch thick, and perfectly unapproachable". Magical power abides in and emanates from him. By this superstition, an aristocracy is formed, and property (the property, at least, of the aristocracy) is secured. Among the Red Indians, as Schoolcraft says, "priests and jugglers are the persons that make war and have a voice in the sale of the land". Mr. E. W. Robertson says much the same thing about early Scotland. If Odin was not a medicine-man, and did not owe his chiefship to his talent for dealing with magic, he is greatly maligned. The Irish Brehons sanctioned legal decisions by magical devices, afterwards condemned by the Church. Among the Zulus, "the *Itongo* (spirit) dwells with the great man; he who dreams is the chief of the village". The chief alone can "read in the vessel of divination". The Kaneka chiefs are medicine-men.

Here then, in widely distributed regions, in early European, American, Melanesian, African societies, we find those factors in religion which the primitive Aryans dispensed with, helping to construct society, rank, property. Is it necessary to add that the ancestral spirits still "rule the present from the past," and demand sacrifice, and speak to "him who dreams," who, therefore, is a strong force in society, if not a chief? Mr. Herbert Spencer, Mr. Tylor, M. Fustel de Coulanges, a dozen others, have made all this matter of common notoriety. As Hearne the traveller says about the Copper River Indians, "it is almost necessary that they who rule them should profess something a little supernatural to enable them to deal with the people". The few examples we have given show how widely, and among what untutored races, the need is felt. The rudimentary government of early peoples requires, and by aid of dreams, necromancy, "medicine" (*i.e.*, fetishes), *tapu*, and so forth, obtains a supernatural sanction.

Where is the supernatural sanction that consecrated the chiefs of a race which woke to the sense of the existence of infinite beings, in face of trees, rivers, the dawn, the sun, and had none of the so-called late and corrupt fetishism that does such useful social work?

To the student of other early societies, Mr. Müller's theory of the growth of Aryan religion seems to leave society without cement, and without the most necessary sanctions. One man is as good as another, before a tree, a river, a hill. The savage organisers of other societies found out fetishes and ghosts that were "respecters of persons". Zoolatry is intertwisted with the earliest and most widespread law of prohibited degree. How did the Hindoos dispense with the aid of these superstitions? Well, they did not quite dispense with them. Mr. Max Müller remarks, almost on his last page (376), that "in India also . . . the thoughts and feelings about those whom death had separated from us for a time, supplied some of the earliest and most important elements of religion". If this was the case, surely the presence of those elements and their influence should have been indicated along with the remarks about the awfulness of trees and the suggestiveness of rivers. Is nothing said about the spirits of the dead and their cult in the Vedas? Then other elements of savage religion may also have been neglected there, and it will be impossible to argue that Fetishism did not exist because it is not mentioned.

The perusal of Mr. Max Müller's book deeply impresses one with the necessity of studying early religions and early societies simultaneously. If it be true that early Indian religion lacked precisely those superstitions, so childish, so grotesque, and yet so useful, which we find at work in contemporary tribes, and which we read of in history, the discovery is even more remarkable and important than the author of the *Hibbert Lectures* seems to suppose. It is scarcely necessary to repeat that the negative evidence of the Vedas, the religious utterances of sages, made in a time of what we might call "heroic culture," can never disprove the existence of superstitions which, whether current or not in the former experience of the race, the hymnists might naturally ignore. Our object has been to defend the "primitiveness of fetishism". By this we do not mean to express any opinion as to whether Fetishism (in the strictest sense of the word) was or was not earlier than Totemism, the worship of the dead, or even the involuntary sense of awe and terror with which certain vast phenomena may have affected the earliest men. We only claim for the powerful and ubiquitous practices of fetishism a place *among* the early elements of religion, and insist that what is so universal has not yet been shown to be "a corruption" of something older and purer.

One remark of Mr. Max Müller's fortifies these opinions. If Fetishism be indeed one of the earliest factors of faith in the supernatural, if it be, in its rudest forms, most powerful in proportion to other elements of faith among the least cultivated races (and *that* Mr. Müller will probably allow),—among what class of cultivated peoples will it longest hold its ground? Clearly, among the least cultivated, among the fishermen, the shepherds of lonely districts, the peasants of outlying lands—in short, among the *people.* Neglected by sacred poets in the culminating period of purity in religion, it will linger among the superstitions of the rustics. There is no real break in the continuity of peasant life; the modern folk-lore is (in many points) the savage ritual. If any one will compare Mr. Brough Smyth's accounts of the superstitions of Australian black fellows with those of French and Scotch peasants, he will see what I mean. Now Mr. Müller, when he was minimising the existence of fetishism in the Rig-Veda (the oldest collection of hymns) admitted its existence in the Âtharva*n*a (p. 60). On p. 151, we read "the Atharva-veda-Sanhita is a later collection, containing, besides a large number of Rig-Veda verses, *some curious relics of popular poetry connected with charms, imprecations, and other superstitious usages*". The italics are mine, and are meant to emphasise this fact:—When we leave the sages, and look at what is *popular*, look at what that class believed which of savage practice has everywhere retained so much, we are at once among the charms and the fetishes! This is precisely what one would have expected. If the history of religion and of mythology is to be unravelled, we must look to what the unprogressive classes in Europe have in common with Australians, and Bushmen and Andaman islanders. It is the function of the people to retain these elements of religion, which it is the high duty of the sage and the poet to purify away in the fire of refining thought. It is for this very reason that *ritual* has (though Mr. Max Müller curiously says that it seems not to possess) an immense scientific interest. Ritual holds on, with the tenacity of superstition, to all that has ever been practised. Yet, when Mr. Müller wants to know about *origins*, about actual ancient *practice*, he deliberately turns to that "great collection of ancient poetry" (the Rig-Veda) "which has no special reference to sacrificial acts".

To sum up briefly:—(1) Mr. Müller's arguments against the evidence for, and the primitiveness of, Fetishism seem to demonstrate the opposite of that which he intends them to prove. (2) His own evidence for *primitive* practice is chosen from the documents of a *cultivated* society. (3) His theory deprives that society of the very influences which have elsewhere helped the Tribe, the Family, Rank and Priesthoods to grow up, and to form the backbone of social existence.

A. LANG.

II.—AN EMPIRICAL THEORY OF FREE WILL.

IN one sense, the beasts of the field and the fowls of the air are like us: for most of their lives they do less than they can. A horse runs faster and farther when he follows the hounds in full cry than when he careers about his paddock in spring: when two bulls fight for an heifer one gives up when he is tired, but a bull in the bullring fights as long as he can: the hawk before he wears the jesses, while he flies unhooded where he will, chooses to stoop at smaller game than herons: and the fox journeys farther in a hour when the hounds have sighted him than in the state of nature he would journey in a day. All these have a store of force in their life to draw upon at their need, but of this force they have not the key which is kept by necessity and her vicar man.

Their ordinary activity does not seem to be free either. The need of food sets them in motion to seek it; if food is plentiful the attraction of it will keep them eating without hunger: the desire of sun or shelter or of water, the fear of enemies, or any thing which seems terrible because it is strange, will keep them on the move, and all this diversity of action takes so much from the storehouse of their life either profitably or unprofitably. The power so expended is no more theirs while they sleep than the power they are able to expend at their need is theirs when they are at ease. The same may be said of their activity when most spontaneous and disinterested. A lamb frisks, a nightingale sings, a lark soars; none debate whether to frisk, sing, soar, or be still, any more than a plant debates whether to flower, or a rose whether to blow, or a star whether to shine. Indeed it is less likely that such activity as this is conscious with some approach to human consciousness than that the activity which meets ordinary needs and desires or exceptional pressure is conscious. A hare that doubles, a fox that makes for a drain, must be taken to know what they are about: when Browning tells us of the wise thrush who sings each song twice over, one suspects poetical licence.

Now in man too we may trace the threefold activity of spontaneity, effort and response (so to name that sum of activity which includes all the actions prompted by an external stimulus or the need to make provision for an inward appetite). In man this threefold activity is far more abundant and complex, and in man the activity of spontaneity and effort may just as well be self-conscious as the activity of response.

It is the activity of response which in the main furnishes the observations upon which the thinkers rely who tell us that human actions are subject to law. It is the activity of effort and in a less degree the activity of spontaneity which support the traditional conception that in the conflict of desires and the storm of passions the rational will is sovereign and free, or, as an ancient thinker said more soberly, in the whirl of necessity man is but half a slave.

The tendency to avoid a mad bull or a cannon ball is one of the simplest cases of the activity of response and certainly there seems little freedom here. Again, a vigorous person instinctively returns a blow, a person less vigorous instinctively turns away: it is needless and preposterous to imagine that each calculates which is the most likely course to avoid being struck again or takes without calculation the course that experience suggests; all the experience either needs to act is just so much as gives them the orderly use of their limbs. It is obvious that we can observe the tendencies of individuals or masses of men in this sphere of action and reach generalisations which are pretty accurate, as that a bargee will respond to a blow with his fist or perhaps with his boot while an Italian will respond with his knife, and a Hindoo if struck by an European will probably cower before the aggressor and perhaps call him his father or his mother. Observation will carry us farther. If a gentleman is assaulted when alone he will defend himself and perhaps punish the aggressor; if a lady is with him he will see her safe and then settle with the aggressor with or without the help of the police. The late Mr. Keble when he came into a room was sure soon to make his way to the bookcase "to see if there was anything about Bishop Wilson". Whatever may be said of the way in which Mr. Keble came to undertake his task, the effect of his preoccupation with it was something that could be observed and calculated upon.

Hitherto we have been dealing with the effects of instinct trained and untrained without finding anything to suggest the idea of freedom. It is idle to say of instinctive acts that we are free to do them or not as we wish: we do them at the time without wishing; we need have no imagination of some agreeable sensation to accompany the process or to follow upon its result. Even Mr. Keble did not ransack his friend's bookcases because he wished for the pleasure of seeing something to Bishop Wilson's honour: he never forgot his task and was always instinctively trying to further it, though of course he knew it was very unlikely that he would come upon anything relevant and much more unlikely that he would come upon anything he did not know before.

Nor do we get out of the sphere of observation and calculation when we come to what men do because they wish. Their wishes themselves seem to be facts which belong to the general order of the world. That a man grows up with a taste for wine is a fact like the fact that another grows up with a tendency to consumption. One woman is dressy as another is hysterical, one man is avaricious as another is greedy. It is premature in every case to inquire why those things are so; we do not know the general facts which would prepare us to recognise the individual facts without surprise or even to anticipate them. But when the individual facts are recognised they give rise to rational expectations of what a given person will do under given circumstances: for instance, one may come to be pretty sure on a few months' acquaintance that So and So will postpone a concert to a drinking bout at thirty, and a drinking bout to an important business appointment. Longer acquaintance may give rise to a shrewd suspicion that at fifty or soon after he will be liable to risk an appointment for a drinking bout, for experience shows that prolonged indulgence in drinking bouts tends to lower activity.

This takes us a step farther. We may observe the comparative strength of wishes. A man may like fruit and he may like wine, he may like marmalade and he may like tea, he may think also that wine spoils the taste of fruit and that marmalade spoils the taste of tea, and as he cannot have both the things he likes at once it is possible to observe which he likes best. Again, we may distinguish between the desire for a distant and permanent satisfaction, and the desire for a satisfaction so near that the prospect of it is importunate. To take an instance which is common and creditable, a man may find he likes the prospect of an assured income better than the excitement of cultivating his literary gift even though it may be as considerable as Barry Cornwall's when its owner settled down to conveyancing. And it is still a matter of observation whether a man is naturally given to looking far ahead just as it is a matter of observation whether he is naturally longwinded or longsighted.

All calculations founded upon this kind of data are at best approximate. We cannot measure the strength of instincts and likings exactly, we seldom know all the circumstances which co-operate with them or thwart them. And we generally underrate the extent of the uncertainty because when we consider large numbers the error is reduced to a minimum. It is possible to ascertain within narrow limits how a given rise in the rate of wages, a given fall in the price of bread, will affect the marriage rate in a given country, though it is seldom safe to predict what rise in salary will seem enough to a given clerk to make it worth his while to marry. This affects our imagination as if the special facts which cannot be foreseen could be deduced from the general facts which can be foreseen if only we had an adequate calculus; just as if we knew exactly the mass of the whole ocean, the conformation of its bed, the strength and volume of its currents, as we know the force of gravitation of the sun and moon, we should need nothing more but a perfect calculus to predict the hour and height of a spring tide in any given creek. Of course this is an illusion: the height of the tidal wave in mid-ocean is not an average of its height in all the creeks of the coasts of that ocean. When we find a theory that is adapted to averages which does not meet individual cases, the fault is not merely in our inadequate means of applying the theory but in the inadequacy of the theory itself.

After we have made all that is to be made of instinct and desire and training and habit and circumstance, and the effect of the remembered and unremembered consequences of action, we are only half way to understanding what people will do though we are often much more than half way to giving a plausible detailed account of why they did what they did. If we assume that more knowledge of detail would make both explanations decisive and complete, this is because we assume that "the law of causality" (or whatever we call it) extends to all actions and thoughts of men, and this we assume because such knowledge as we have explains so much, and because "the law of causality" plainly extends to everything else.[1] It will now be well to turn to the other side and begin by the consideration of some of the simpler cases where the conception of "motive" seems more or less inapplicable or inadequate. A man may take his daily walk simply as a matter of habit, and then arises the question what motives if any he had for forming the habit. Again, he may walk because he wishes to get to another place for business or pleasure, or because he wants to work off a fit of moroseness or worry, or because he knows it is a necessary precaution against his dinner disagreeing with him, or again because he expects positive pleasure from the quickening of his circulation. Each of these is a definite intelligible motive; but what are we to say of a man who walks because he is a good walker, because the accumulated energy of a well-nourished trunk and limbs presses for discharge. If his occupation confine him much indoors he is likely to be aware of the pressure, but the pressure does not act through his knowledge of it, as other motives do. When he acts on them he is made aware of his relation to other beings and of the limitations of his own being; but when he acts upon his own inward impulse coming into consciousness with no trace of the conditions under which it matured, fulfilling itself unchecked, he feels himself free all the more if, as seems probable, the impulse just after coming into consciousness encounters and surmounts at once the check of a momentary hesitation.

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[1] Supposing experience to show that people with any rallying power will recover if properly prayed for as they will recover if properly treated, or that litanies are as effectual in bringing rain as the discharge of heavy guns, neither fact would be any exception to "the law of causality".

Take another instance. If a man likes cherries and walks where the ripe cherries hang in easy reach, the motion of hand and lip seems nearly as mechanical as the movement of the idle arm that keeps time with the lazy swing of his legs, though of course this last is unattended by desire and unguided by sensation. But now consider a man with the same liking for cherries getting up and going out to gather and eat. Shall we still say, as we might very well have said before, that his liking for cherries is an adequate motive for his action if a motive is wanted? Hardly: his action is no longer mechanical, he has taken a resolution though a small one. His liking for cherries has been reinforced from the same central store of energy as set our disinterested pedestrian in motion. It is the coming in of this fresh factor that reproach or self-reproach naturally fastens upon. If the censor says "Cherries are so bad for you" or "You are always eating cherries," it is a defence especially to the second indictment to say "It is my nature to be fond of them"; but still the censor has the last word "You need not have gone out on purpose".

In fact, he would not have gone out if his central store of energy had been fully taxed just then by a severe fit of toothache or a stiff game of chess. While it was taxed (if the pain was sharp enough or the game stiff enough) he had no consciousness of freedom: when he forecast the consequences of two alternative moves with strained attention as far ahead as he could see and then chose the one that was most hopeful or least objectionable, his choice, if we like to say so, was determined by the prospect as the poise of a balance is determined by the weights. But perhaps the game after one or two exciting crises got dull as the board grew clear and both players got tired of it and left off. At once they were free as they were before they sat down, for by the hypothesis what the game exhausted was not the general store of energy of their lives that day but their specialised energy as trained chess players: while this lasts it is very likely strong enough to take up all the general energy they consciously possess at the time when it is exhausted. It very likely leaves the general energy not perceptibly impaired and ready for fly-fishing or swimming or smoking and talking politics or anything else the owners resolve to do.

Paulo majora canamus. Toothache and chess are much more absorbing than much more important occupations. Whatever we are doing, whatever reason we have to do it, we are seldom wholly and spontaneously taken up in it (hence the difficulty of application); so too when we are contemplating something to be done we are quite aware of reasons for doing it, perhaps not aware of any reason against it, and yet it is not true as a rule that the reasons of themselves determine us: we have to make up our minds with more or less delay to act upon them. Most people at some time of their lives find it a daily test of resolution to get up in the morning; most people if they sit up long after their time find they have to make an effort to go to bed. It would be absurd to imagine those in such case swayed by the rival attractions of bed and breakfast, or the fireside and bed; commonly enough the only attraction felt is a languid one to doing the proper and sensible thing, but this attraction has to be reinforced by an inward effort. So too when we yield to temptation, up to a certain point we co-operate with the feeble attraction of the right course and then we co-operate with the stronger attraction of the wrong. Seldom, if ever, do we resist in vain until the temptation with which we have parleyed has gathered strength and volume enough to sweep us away. As the tide rises we plunge.

It is the same with innocent alternatives: we may weigh consequences and balance difficulties till we feel no inclination left to any course, and this though, before we stopped to deliberate, the attraction of one may have been strong enough to make impetuous instinctive action possible, since in a world like this reflection upon remote results commonly mortifies desire. For instance, if a man asks a maid to run away with him at a moment's notice and she consents, her act is most plainly one determined by a motive—complicated enough though probably her imagination of the man's need of her is the decisive part in it. If on the contrary two people are reasonably persuaded that a runaway match is their only chance of marrying, if they are both possessed with expensive tastes and habits, it is obvious that their decision if they take time to reflect will be very nearly unmotived. The more they contemplate the wretchedness of the state when poverty comes in at the door and love flies out at the window, or the gradual drying up of all interest and emotion out of their lives if they prefer their habits to their love, the less they will see to desire in either path; and if they consider farther how they came to a meeting of two such ways they will find how much there is to fear and little to hope, and will conclude that in an unfortunate planet the least unfortunate are the small minority who find action enough without any prospect of enjoyment. But if the lovers have lost any rational prospect of enjoyment the loss does not abolish their own activity, they are young and vigorous. The light of truth has put out their desires as sunshine puts out a fire of coals. Desire does not blind them and yet they are able to blind themselves, that desire may burn up a little in the dark to warm them at the beginning of a journey that will chill them to the marrow before it is done. The received explanation is that the same set of motives, the same conflict of desire and circumstance, acts differently upon different characters. And it is quite true that there are crises which are simply a revelation: they bring to light what has been growing more or less consciously while there has been no need to talk about it or act upon it. But often there is a real struggle, a real suspense, followed by a decision. If an emergency is not too much for us we rise to it—if, in other words, it brings out fresh powers which have still to receive their direction. To take an instance that is not tragical. It is quite possible that a boy of fifteen may have to decide whether he shall be an engineer or stay at school and go to an university: it will probably be a little shock to him to realise that thenceforward his employments must have a definite purpose, but this will give place to a sense of responsibility at once steadying and bracing. Suppose he has fair sense of his own and considerate friends, who wish not to dictate to him but to help him to make up his own mind, and a pretty fair chance of a moderate success either way. Let him think which of his impulses present and prospective either life would gratify; let him think of acquaintances whose positions seem to be within his reach, and ask himself which of them he would wish to be like at forty. It does not exhaust our perception of the case to say the boy is free; something woke up that is free within the boy, something that is as independent of the rival inducements each of which has its hold upon him as a judge is independent of the counsel between whose pleading he decides after learning all he knows of the cause from them.

So far then we have an explanation of the immediate consciousness of free will as the consciousness of that part of the sum total of our energy which we feel just coming into play, not yet taken up as much if not most is by habit, desire or circumstance. Some farther observations will strengthen this explanation. People who seem in some way weak and irresolute, like Johnson who was incurably indolent, or Coleridge who in the literal etymological sense was incurably 'dissolute,' or Maine de Biran who was at the mercy of distractions, are remarkable for their confidence in their consciousness of freewill, while great men of action like Cæsar and Napoleon are often fatalists, even though they may be dilatory like Wallenstein or irresolute like Cromwell. It is plain that in great men of action the two factors of human activity derived from nutrition and from experience are fused into perfect unity, while in the men of speculation the fusion is imperfect to the last as it is in the great majority of mankind. Hence while men of action conceive their own activity by the analogy of the more impressive of the overmastering forces of the outer world, men of speculation formulate and defend the natural "personification of the abstraction Will as something apart from the total of volitional impulses, and therefore removed from their conditions". And there is much in the experience of the most exemplary men of action who are content to work within consecrated limits to reinforce the theory which commends itself to men of inaction. The perfect unity which is so wonderful in the central portion of the career of a Cæsar or a Napoleon is only possible when the monstrous overweening activity, beneficent or maleficent, is absolved from all laws and conventions and tries to be a law to itself alone. A thoroughly dutiful person is always persevering with tasks that have grown distasteful, doing unprofitable things, leaving profitable things undone, out of deference to personal or impersonal superiors, crushing strong impulses in order to husband strength to act upon weak, never able for long together to act without thinking, never able to suspend action to indulge in unbroken thought. In this way also it is possible to come to unity at last, perhaps a more admirable and stable unity than is possible to unrestrained self-assertion. Cæsar crawling up the steps of the Capitol on the day of his triumph, Napoleon improvising a Christology at St. Helena suggest a break-up. But the unity of self-assertion is spontaneous; the unity of self-control has to be laboriously maintained, in many acts it has to be laboriously attained. To compare great things with small, no one is conscious of effort or freedom when they run from hurry or fright: very few keep up a steady pace for three days together in a walking tour without some sense of both. Or we may recur to the case of Coleridge: he recognised a law which he fulfilled very imperfectly; his ineffectual effort at conformity was accompanied by a sense of freedom, responsibility, guilt. Shelley's theory was the unrestrained assertion of human spontaneity or communion with nature, and as might be expected Shelley was a necessarian. To resume what has been said: so far as human conduct depends upon experience or desire we have as much evidence as we could expect that it is subject to the "law of causality";[1] it is the unexperienced energy which manifests itself in disinterested activity, in resolutions great and small, in the deliberate decision of great alternatives, in baffled aspiration and in dutiful endeavour, that gives rise to the subjective consciousness of freedom.

And here we come to the question, Is the subjective consciousness objectively valid? If, as has been suggested, the subjective consciousness is really dependent upon the fact that sensation and work seldom if ever entirely expend the store of strength accumulated or replaced by growth and food, it seems as if we might confidently answer the question in the negative. It is obvious that the growth of a stable formation like a crystal, an unstable formation like a plant or an animal, is always in a definite direction except so far as it is marred by external hindrance or internal defect. Naturally we are inclined to explain the most complex organisms by the analogy of the simpler and have a plausible presumption to read into the scanty observations which it is possible to make. We may see that one is naturally resolute, another naturally irresolute; one naturally industrious, another naturally indolent; one naturally roused by emergencies, another naturally cowed by them; one puts forth more strength as difficulties multiply, another comes to a standstill. The difference seems like the different ways in which horses answer the spur. We may see too that the sense of freedom to do either of two things when we are doing neither has a curious resemblance to the arrogance of youth which has done nothing yet and in the pride of opening power pronounces everything that has been done unsatisfactory. Another fact which seems to tell the same way is that it happens to many to be tempted or provoked into the indulgence of unlawful wishes with which they reproach themselves little because they never come to a commencement of execution. Their unwholesome day-dreams of pleasure or power or revenge incapacitate them more or less for waking life, but still it seems their activity is quite incapable of following the vagaries of their imagination. It is all one whether it comes into any empty head that it would be useful to rid the world of a tyrant or that it would be pious to copy the austerities of a devotee; whichever it is, plenty will be fools enough to nurse the thought, very few will be fools enough to begin to act upon it, most of them will draw back in time. If our activity were unconditionally free it would be free to attempt whatever we desire even though it were something which, whether right or wrong in itself, is absurd for us to attempt. As it is, it rebukes our dream with the dumb persistence of Balaam's ass. It is plainly free from the law of our desires and as plainly subject wholly or in part to other law.

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[1] This corresponds to Kant's distinction between empirical determinism and transcendental freedom though the point of view is different.

On the other hand, it is by no means clear that the subjection is total: no amount of day-dreaming about Charlotte Corday or Saint Teresa will turn a commonplace person into a tyrannicide or an ascetic, but one of the things most completely in our power is whether we will check barren day-dreams or no. They present themselves more to some than to others, but of those to whom they come thickest some put them away. There are people naturally dreamy who have trained themselves to be practical, people naturally inattentive who have conquered application, as there are people naturally irritable who have conquered gentleness. Neither they nor others notice that they set out with an even stronger desire for the acquired habit or for some of its results than is to be found in those who acquire it to the same extent with no difficulties to overcome, nor is it found that they have always had some poignant experience which has forced them upon self-conquest. The more closely we analyse the process of the improvement or deterioration of character through a steady direction of the attention and intention, the harder it is to think away the central self which as far as we can trace the process back seems always active. If we consider the training of a man as a whole, it is possible to give an account of it without referring to anything but the conditions inward and outward which belong to the general order. He must have some desire and some aptitude for the end in view; action in the right direction will be sure to strengthen his desire to extend his aptitude; familiarity with certain ideas, association with certain persons, contemplation of certain results will as surely facilitate action. But it is he who has to act, he who has to dwell on the ideas, he who has to seek the associates, he who has to bear the results in mind. Some do this, others not, the same man sometimes does sometimes not. Always we are thrown back upon the fact of choice at last when we try to go to the root of any special piece of conduct. It is possible to carry out the inquiry into effects within the sphere of psychology, but if we wish to carry out the inquiry into causes it would be necessary to descend into the sphere of biology where the late Mr. Lewes suggested that an explanation might be found. It is certain, for instance, that what affects the digestion is apt to affect the temper; it is also certain that what affects the temper very strongly is apt to affect the digestion. It may be held that the first of these two certainties is the more important because it is matter of ordinary observation that most fits of temper wear off under the influence of a good dinner.[1] It may also be held that discoveries yet to be made in the tissues of nerves or brain or in the variable rate or proportion of the different secretions may contain an answer to the question why among other things self-accusation is a bracing discipline to one and an enervating indulgence to another; only it is to be remembered if we hold this last we hold it as a matter of faith. We return to ground which is solid by comparison when we observe that all which is distinctively human implies the central store of surplus energy of which we spoke before. A thorough-going evolutionist is bound to face the question whether language is developed out of the cries which perhaps once accompanied keen external sensations as they still tend to accompany keen internal sensations, or out of the cries which accompanied concerted action; but whichever explanation may be favoured by the tabulated results of an analysis of the most ancient roots, it is clear that to erect the cry into a symbol of the accompanying perception already implies a vast superiority, and a rudimentary power of abstraction quite as special as the second step by which the symbol becomes the instrument of forming general concepts. So too with desire: in other animals desire is limited to the objects which suggest or satisfy it; it is peculiar to man to desire first something more than he finds or has found, then something better, then something other, till he ends by wanting better bread than is made of wheat. The power of idealisation is intimately associated with the power of generalisation; both imply a self apart from things.

And this self is always at first a disturbing element in the organism though afterwards it may and does become an element of guidance. To take the very simplest instance: almost any animal can stand or walk as soon as its legs are strong enough to carry it; long after a child has reached this stage it is continually losing its balance and falling down: it has to learn to walk with its whole being, whereas for an animal the reflex automatic sensations of the legs are enough. So too when a child is old enough for oral training; if it is taught to do a thing the first thing it learns is to form some representation of what has to be done as a whole: in training an animal every stage of the process has to be separately inculcated and every inclination of the animal to do anything else has to be checked till the lesson is finished. After several repetitions the animal has some dim notion of the process as a whole, enough perhaps to set it off through the whole performance at a signal invisible to a looker-on. But a child learning to dance has just as much advantage over an animal as an animal has over a child learning to walk.

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[1] On the other hand there is good medical authority for the belief that more men upset their stomachs by mismanaging their nerves, than upset their nerves by mismanaging their stomachs.

Conscious action and voluntary action are correlative conceptions (action under such excessive strain as to preclude consciousness is properly reckoned involuntary); self-conscious rational action and deliberate choice between distinctly imagined alternatives are correlative conceptions (in a continued methodical course of action pursued without hesitation self-consciousness and even distinct reflection upon the original purpose tend to disappear, reappearing as occasions of hesitation or declension arise). Is self-determination more unique or more anomalous than self-consciousness?

If we suppose, for the sake of argument, that mankind originated from a breed of highly improved apes by their exchanging a diet of fruit and nuts for a more digestible diet of unimproved cereals and at the same time exchanging arboreal for terrestrial habits, we are entitled to insist that the double change must have liberated a great deal of energy which may of course have gone to the head, though this does not seem to have been the case with the dodo. But even conjectures like this do not really make the hypothetical chain of causality complete. The most plausible conjecture as to how a reservoir has been filled does not tell us whither it will overflow.

It is obvious that the doctrine suggested above does not imply any belief in the creation of fresh energy (in the brain or elsewhere); it is quite in accordance with the orthodox assumptions that the whole sum of energy in the universe is absolutely fixed, that the share of the solar system is fixed since the first movements of the primæval nebula towards condensation, and that the share each individual is to appropriate is fixed by conditions of ancestry and nurture. When a man chooses, whether we believe in free will or determinism, energy is no more generated than when water boils. Very likely the water was doing no work till it passed from the tank to the boiler; when there it might turn the engine or burst the boiler. Whether it stayed in the tank or turned the engine or burst the boiler did not depend upon the water. Whether a man shall live at full pressure or no, whether his activity shall be destructive or constructive, seems to depend so far as yet known on free will.

This must not be exaggerated: the power of free will is limited and transient. There is always a proportion between what we can attempt and what we can perform, even between what we can imagine and what we can attempt. The reason is not far to seek. As Professor Bain has pointed out, conscious action presupposes unconscious activity just as certainly as conscious thought presupposes confused sensibility. Free thought, free will develop and detach themselves from a back ground of automatism; trained thought, trained will become automatic again. A baby crows before it can talk, a man learns to converse and "falls into anecdotage". Very young children have no free will; sometimes one sees in them a certain obstinacy of desire that looks like a rudiment of it. Very old people have no free will either; sometimes one sees in them an insistance upon habitual claims, often as impotent as it is imperious, that looks like a residuum of it. Even persons still in their prime, in full and successful employment, are much more keenly aware of things that have to be done than of their freedom to do something else.

After all free will is not the highest freedom: it decides perplexities, it determines hesitations, it surmounts hindrances; things and people, the world and the flesh are against us and yet to some extent we get our way in spite of them; we struggle to keep our place in the ranks, to keep our ground against the torrent; we are above and apart from nature, even our own nature, which we strive to subdue as its pressure almost overpowers us. But the action of the perfect so far as they are perfect is as natural as the play of a kitten, as the blossoming of a rose. Only it proceeds from a higher nature in which experience has passed through reason into insight, in which impulse and desire have passed through free will into love.

G. A. SIMCOX.

III.—RELATIONS OF REASON TO BEAUTY.

THE words *law*, *order*, *regularity*, are the key-notes of all scientific discussion; and we naturally come across them whenever attempts are made to treat æsthetic problems on a scientific method. There seem, however, to be special dangers and ambiguities connected with their use in that particular region; special facilities for sliding imperceptibly from one sense into another, and so adding extra confusion to branches of inquiry which are in any case sufficiently obscure.

"Beauty," says Helmholtz in the last chapter of the *Ton-Empfindungen*, "is subject to laws and rules dependent on the nature of the human intelligence." This, though sounding most reasonable, is just the sort of statement which is liable to be misunderstood and misapplied: and some of the points I wish to discuss may be conveniently introduced by inquiring in what sense and within what limits it is true. That there are limits is soon manifest. For instance, it is a law that regular rapid stimulation of certain nervous organs produces the sensation of a musical tone: in other words, the subjective impression of beauty of tone is subject to a certain rule of nerve-stimulation which in no way depends on the nature of human intelligence, and the relation of which to the sensation of pleasure is an ultimate simple and non-reasonable fact. So a piece of red coral presented to an infant, or a piece of blue sky vacantly gazed at by an adult, affords a pleasure whose conditions may certainly be generalised into a law, but a law expressed in terms of physics and nervous organs, not of human intelligence. And a large part of the beauty perceived in the *colour-qualities* of sights and sounds is clearly of this ultimate character. When however we pass on to *forms*, to objects and melodies, where the co-ordinating mental faculties become active, Helmholtz's statement about laws and rules seems at once applicable. But a confusion is still possible: *subject to* laws and rules often slips into meaning *consisting in subjection* to laws and rules, clearly a very different thing. For instance, if we take works of art, with special reference to which Helmholtz is speaking, we see that a painter must not represent in one picture a number of heterogeneous and quite unconnected objects, because it is a law that the mind is puzzled and distracted by total aimlessness and want of unity; a composer must not repeat exactly the same passage twelve times running, because it is a law that the mind is wearied by prolonged and objectless monotony; neither painter nor musician must introduce grotesque incidents or episodes into solemn compositions, since it is a law that the mind resents pointless incongruity. But the laws and rules which can be thus formulated have, so to speak, an external sort of relation to the beauty: they are controlling conditions, not essence: no such formulæ will account in the slightest degree for the central face in the *Cenacolo* or for *Dove sono.* So again, it is quite true, as Helmholtz goes on to observe, that we may "seek to enhance our enjoyment and interest by tracing out the suitability, connexion and equilibrium of all the separate parts" in a work of art. But still we shall be dealing with the conditions, the framework, the means of setting forth and focussing the essentially expressive forms. The necessary regularity of the composition in the *Cenacolo* would disappear, and we should instantly see the mistake, if the divine face were in a corner instead of in the middle, and an indispensable rule is observed by putting it in the middle: but this is the arranging, not the informing, element; it is the expression that moves us, not the position. Nor need we take such extreme instances: the treatment of the subject-matter may not be irrational, and yet may fail to be imaginative or interesting; and its success or failure in this respect falls naturally under our intellectual cognisance. Thus a painter introduces as many objects as he likes into a picture, and groups them as he pleases: he could verbally explain and defend his arrangement, and we could discover, or Mr Ruskin could discover for us, the various ways in which the eye was led and helped and the mind satisfied, and the various causes why the arrangement was powerful and suggestive, or (it might be) weak and theatrical. But it is not in any way demonstrable that one nose is more orderly than two, or two eyes more conformable to reason than four. The expression of a face, the strength and freedom of Turner's mountains and waves, are not revealed to us by any reasoning process. However characteristic of the artist's genius, however essential to the artistic product be the features of rational or imaginative combination and arrangement, they stand distinct from the qualities inherent in the separate items of the subject-matter: and considerations which can be set forth to the intelligence in words cannot penetrate to the individual forms, whose impressiveness (as I hope further to show) is to our immediate consciousness special and ultimate, and only presentable in the proper materials of the particular art.

But that inherent significance, it may be urged, and those individual forms, are recognised and enjoyed on grounds which may surely be classified and defined: granting the general arrangement of the subject-matter in elaborate works to be a more external and describable affair, still our knowledge of mental constitution should surely afford us some principles about the more essential elements of beauty. Certainly: such principles, so far as they go beyond the mere laws of sensory stimulation and extend to the intellectual region, will be the general facts of our mental processes, as regards, *e.g.*, the pleasure of imitation, or the love of type and metaphor, and, above all, the laws of association, hereditary and individual, which are deeply involved in most of our enjoyment of form. But here the "laws and rules" are of a totally different kind from those we have hitherto spoken of: they are general facts about the development and characteristics of mind itself, not about relations which the mind desiderates in phenomena, and to which therefore beautiful phenomena are bound to conform. They are general as applying to all minds, not as applied by the mind to all phenomena: their regularity is not a logical order demanded by the mind, but the mere historical regularity wherein the evolution of mind resembles all other gradual natural processes. So that, if we try to apply this new conception to the old quotation with which we started, its sense is wholly inverted and it becomes a barren truism. From meaning that phenomena, to be beautiful, must first prove themselves to be reasonable by subjection to general rules of the intelligence, it would have come to mean merely that the mind perceives and feels a particular thing, beauty of this or that kind, as it has been by nature constituted to perceive and feel it.

In an artistic work, then, it seems as if we must carefully discriminate an element of law and order which can be formulated and recognised as in accordance with what we know of the mind's general activity, from an element of beauty and impressiveness which it is my main object to prove to be beyond the reach of formulæ and of conscious analysis, and the perception of which in each special kind of presentation seems connected with some special range or ranges of association, dating back in many cases to the very dawn of mental life. This element is the peculiar characteristic of the units, which, though subsidiary in the sense of contributing as parts to the whole effect, are themselves complete forms or organisms, naturally and essentially organic in contrast to the larger artistic organism into which they are artificially combined, and incapable of being further reduced or analysed without complete mutilation or violation of all natural impressiveness: as, for instance, if we analyse a face into its separate features, or dissect a flower into microscopic parts. In the case of music, where the melodic and harmonic forms are not objects or unities known in the external world, but new presentations, the line dividing off what shall be regarded as absolutely complete organisms from the clauses, themselves organic, which combine into larger forms, is necessarily less distinct: but any melody or "subject" or phrase which can be thought of and enjoyed in detachment, has enough completeness to constitute a form in the sense meant. And the case of architecture is to a certain degree analogous.

But, again, it may be urged that though we have pointed out one sort of law and order which does not explain or constitute beauty, we have no right to assume that reason does not penetrate beauty in some other way. Is not *symmetry* perpetually an essential factor in the individual and irreducible forms? and surely this commends itself as reasonable to the intelligence. Now the main source of confusion between general intellectual processes and special perceptions of beauty is the very fact that one of the simplest relations which the mind perceives and grasps is that of symmetry and regularity, combined with the further fact that this relation, being often present in beauty, is often perceived with pleasure: whence, by taking the factor for the whole, and then mixing up the ideas of regularity and rationality, a sort of relationship seems to be established between beauty and recognised laws of mental activity; and such a statement as that the reasoning mind requires and enjoys symmetry and order, becomes one of the laws and rules to which "beauty is subject". In other words it *sounds* more rational to say "the mind is so ordered as to enjoy order" than to say "the mind is so ordered as to enjoy disorder". And yet, as regards truth, the latter statement would serve quite as often as the former, if we could at all rest in either as an adequate explanation; for if on the one hand Westminster Abbey is beautiful, so on the other is the tangled luxuriance of a tropical forest. But we continually find such facts, for example, as that the human face is normally pretty symmetrical, and in case of beauty often very completely so, and also that beautiful faces do not present wide divergences from a norm, taken as basis for an explanation of human beauty; which is referred to "the mind's love of symmetry and regularity," and dislike of things exaggerated and abnormal. When we examine such a particular case, we of course see at once that many faces which are quite regular and have no exaggerated feature, are not in the least beautiful; and that though symmetry may be an ineradicable factor, the beauty lies more essentially in minute details of free form and curvature, the unanalysable effect of which on us is mainly due to vast hidden stores of association and an extraordinarily developed power of comparison, *regular* only in the historical sense that their existence is not an unconditioned 'fluke'.

The conception of regularity and conformance to reason as the primary factor in beauty, if legitimately pressed, naturally leads on to an actual identification of æsthetic perception with scientific cognition; an identification which was expressly made by Comte, and which often turns up under some form or other in æsthetic discussions. I have been fortunate in finding an especially clear and courageous statement of this view in an ingenious paper on the "Evolution of Beauty" by Mr F. T. Mott, in the *Quarterly Journal of Science* for July 1878, some sentences of which I cannot do better than quote and condense.

> "Beauty" he says "is an abstract idea of the same nature as Goodness, Truth, Power, Charity &c., and that which causes this idea to present itself in the human consciousness is the *perception of relationship among a number of diverse sensations*, of unity co-existent with variety. When the attention of the mind is focussed upon a variety of points in rapid succession, and the intellect is able to recognise *relationship* among all these points as members of one group, there arises the idea of Beauty. It can only present itself under the conditions of mental activity co-existent with the perception of relationship, proportion, unity." Acts of attention, if absolutely repeated, are monotonous; hence the primary condition under which any object can appear beautiful to the human mind is that it be compounded of sufficiently varied parts. "Every object in nature is so compounded of various parts, but human minds are not equally sensitive to small shades of difference." "Every object in nature is a group of parts related to each other in ways more or less complex and subtle. If any mind were absolutely sensitive to all degrees of relationship in all its aspects, nothing would appear chaotic. A mind absolutely sensitive to all shades of difference and to all degrees of relationship at the same time, would see everywhere throughout creation variety bound up in unity, would find neither monotony nor chaos, discord nor ugliness, but only a universal Beauty." The mind however is "sensitive either to variety or unity only within narrow limits". No difference is perceived between seeds of the musk-plant, no relationship between the numbers 264, 330, 396, 462: whereas the stones on a gravel-walk present sensible differences, and 2, 4, 6, 8 are obviously related. "The closer the relationship, the more easily is it recognised." A pentagon, hexagon, circle, square, equilateral triangle possess beauty; a dodecahedron is scarcely beautiful except to a mathematician.

Now here the identification of æsthetic perception with cognition is so fundamental, that all reference to our actual senses seems to be dispensed with. To *see* "everywhere throughout creation" beauty in place of chaos, a change of eyes would certainly be necessary: for those we now possess see, except in rare cases, only outsides. Moreover extent, as well as opacity, would make universal beauty hard to get at. Suppose then we give up such inconceivable regions and select some very large object, say the desert of Sahara. It is probable that no two grains of sand there are identical in size and shape, so that with sufficient magnifying power we ought to get a splendid notion of unity under variety; but then unfortunately the disproportionatenesss of the parts to the whole is so enormous that the differences of the parts seem to have absolutely no relation to the individuality of the whole, which would remain unaffected if the position of every part were altered. We have then to come down with a run to limited and clearly defined conceptions, and to what in the visual region we know as forms, (to audible phenomena Mr Mott makes no reference), and in considering the view in relation to these, we must do what the author has not done—carefully distinguish *two modes* of relation between the parts and the whole. (1) Definite points of identity are perceived in the parts, and the relation between the parts is at the root of and explains our perception of the whole; as, for instance, in a geometrical figure, whose regularity and unity are perceived by a comparison of similar lines and angles, or in an arithmetical series seen to be a regular one by the perception of the common difference. (2) The sense of the whole is the primary and fundamental fact, and the only point of identity perceived in the parts is their common character of belonging to the whole, the exercise by each of a function impossible to it in isolation: as in the profile of a face, or in some irregular natural object, or in a line of changing curvature. Often, indeed, the first of these modes of relation seems partially present with the second, as in a human face and figure seen from the front: but here, though the relation of symmetry between the two sides is perceived, the effect of this element is not so essential but that it could and would have been dispensed with, if human beings had been naturally and habitually unsymmetrical on some definite plan. In the first mode, pure and simple, the recognition of the common characteristics and the relations of the parts seems scarcely able to get beyond the satisfaction of mere scientific cognition: and Mr. Mott would surely have to admit some such distinction as we have drawn, if he would avoid the conclusion that a complicated but intelligible geometrical figure is as beautiful as a statue; since the perceptible points of identity and relation in the parts of the statue might well not exceed in number and variety those of the figure. And, indeed, though most of his statements and examples point to the first mode of relation, Mr. Mott does himself say that "the point of identity which must be perceived in order that the group may appear beautiful is that all those phenomena belong to that group," and take a necessary part in its formation: which is a statement of the second mode.

If then we examine his position on this side, it is of course obvious that the perception of beautiful form does entail the perception of unity under variety. It is through the immense exact and rapid sensibility of the eye and ear to variety in the impressions they receive, and the consequent opportunities for comparison and co-ordination, that seeing and hearing are *par excellence* the æsthetic senses. For not only is the mental activity, which is a necessary factor of the highest pleasure, intimately connected with this exact and subtle sensibility to the arrangement or order of impressions, but the immense variety possible in forms is the necessary condition of any wide variety of association and suggestion. Thus it is only in connexion with *forms* that the higher and more complex mental faculties come into close and habitual relation with sense-impressions; whence their æsthetic superiority to *colour*, the purely passive and sensuous enjoyment of which is shared with us by many animals: for though an animal may *recognise* objects, may take this or that shape as a symbol of known attributes, it lacks the mental development necessary for æsthetic enjoyment of their form.

But the co-ordinating faculty has *in itself* no æsthetic character: unity under variety is a characteristic, or rather is the definition, of all form, not specially of beautiful form. On Mr. Mott's theory a prize-pig is as beautiful as a peacock, the Wellington statue as the Venus of Milo. The spectator is treated as though he were a sudden importation from another sphere, gifted with the perception of relations of fact, but without any emotional history or nature; not as the product of slow development in a certain environment, a being whose perceptions in certain directions are saturated with emotion, and whose feelings, however sublimated and differentiated, have their primæval roots in simple unanalysed experiences. As regards the visible objects which appear to us beautiful, the rough rudiments of the associative element are sufficiently obvious. Thus, as regards our knowledge of the human face and form, the acts of attention in which we and our ancestors learned the minute and infinite varieties of shape and adjustment have been associated with countless experiences of safety and comfort in connexion with smiles and kind looks, of strength and security in connexion with healthy limbs: the qualities of power and gentleness would be sufficiently manifest even in the præ-human stage, and the eye would note their visible signs, while such more complex qualities as dignity and refinement, or meanness and vulgarity, would need more advanced powers of abstraction and generalisation: grace easily associates itself with the pleasure of smooth motion; weakness of frame suggests staggering and falling; and so on. Thus in the acts of contrast and comparison characteristic of the sense of sight, differences would be not only *known* but *felt*; and the complete impression would be quite incommensurable with the perception that arms differ from legs or a pentagon from a hexagon.

Not but that in the sight of beautiful objects there is a strong element of enjoyment of *abstract* form, direct pleasure in line and curvature. The discussion of this feature, however, together with some further consideration of what is, and what is not implied in *symmetry*, will be best deferred till we have further examined that general theory of the subject, in relation to works of art, to which reference has been already made, and which seems to have a special bearing on those very points. The view in question, while differing fundamentally from Mr. Mott's in recognising that our senses with their given powers and limitations are for us the channels of beauty, still involves in a certain form the first mode of relation above-discussed, though again it differs by representing the *rationale* of relationship in the parts as something not consciously apprehended but instinctively surmised. It is the view drawn out at considerable length by Helmholtz in the above-quoted last chapter of his *Ton-Empfindungen*, and it appears to me decidedly less sound than the masterly exposition to which it is appended. His reason for its introduction is his opinion that "there are probably few examples more suitable than the theory of musical scales and harmony to illustrate the darkest and most difficult points of general æsthetics". Postponing the musical point, I will briefly epitomise his statement of the problem itself.

> Works of art, (he says) though subject to laws and rules, must *appear* undesigned: if anything proclaims itself a product of mere intelligence, we refuse to accept it as a work of art. The very fact, however, that we subject works of art to a critical examination and trace out the suitability and connexion of the parts, shows we expect it to be *reasonable*, "shows that we assume a certain adaptation to reason in works of art, which may possibly rise to a conscious understanding". Yet the beauty must be such as to be recognised by the immediate taste without any such deliberate reference to reasonableness. Nay this unconsciousness is essential; for it is through the imperfection of our perception, "through apprehending everywhere traces of regularity, connexion, and order, without being able to grasp the law and plan of the whole," that we get the ennobling conception of the existence in the work of a mighty permeating order, visible to us only by fragmentary glimpses, and that hence we divine a something infinite and transcendent by virtue of which a work of art seems to represent the infinite and ordered universe. "It is precisely from that part of its regular subjection to reason which escapes our conscious apprehension that a work of art exalts and delights us, and that the chief effects of the artistically beautiful proceed *not* from the part which we are able fully to analyse." The difficulty is to understand how, without consciously feeling the regularity *as such*, we nevertheless appreciate by our own tact and taste an amount of "order, connexion and equilibrium of all internal relations" which conscious thought could only accomplish with infinite time and labour.

Such is the view: and again those unfortunate words *order* and *regularity* seem to me the real culprits, leading on, as they do, to the position that because beauty is *ordered*, it *is order*. The element of an elaborate work which we are *not* able to analyse and reason about, the element which I have described as the inherent significance of the irreducible individual parts, is treated as though it was a further and more complex carrying out of the same kind of order as that which we *are* able to analyse and reason about, which I have described as the general laws and features of composition and congruity in the whole. Helmholtz says that "through apprehending everywhere traces of regularity, connexion and order, without being able to grasp the law and plan of the whole," we get the idea that the design is something transcendent, illimitable, and so on. That is, essential beauty is treated as continuous and identical in nature with rational and striking arrangement: supposed conformity to general rules of balance, variety and coherence is credited with the vital beauty of a face or a melody. This "law and plan of the whole," which is what Helmholtz says we cannot grasp, represents to my mind the necessary conditions, the combining order, the *rationale* and significance of the general treatment which are, I hold, just what we *can* grasp and connect with recognised facts of our mental operations: such regularity as is so presented is consciously perceived *as such*, or may become so with further acquaintance. What we *cannot* logically grasp or analyse is not the plan of the work but the *essence* of the impressiveness and individuality in the forms, visible or audible, which make up its subject-matter. To this element law and regularity can only apply in the barren *historical* sense that our perceptions of it came regularly about by natural laws: its *nature* is out of all relation to regularity or irregularity, to reasonableness or unreasonableness, and the intuition of it would not be reached by the most intimate knowledge of "equilibrium of parts" and internal relations. This is perhaps sufficiently clear, and has been sufficiently dwelt on in respect of the imitative arts: but the arts which deal in abstract forms, architecture and music, present greater difficulties, and to these we will now pass. However rooted in the conditions of our environment be the enjoyment of the forms of concrete objects, it may be said, Must not the pleasure in abstract lines and forms be a pleasure in order and regularity? for, since they are in their very nature representative of nothing in the external world, it is not easy to see how their effect on us could have been built up out of simple associational elements.

We will take visual forms first, as presenting least difficulty: for not only are they simpler in themselves, but in the effect produced by buildings there are elements which may be very distinctly traced to associational and other mental sources. For instance, the branching appearance of a gothic roof may be held to owe some of its effect to dim suggestions of forest-forms; and in the ornamentation which is often the informing spirit of a building, many of the forms, though stopping far short of direct representation, are more or less clearly founded on those of organic nature. In the pleasure given by mass, size and strength also, architecture reaps the benefit of conceptions which are chiefly formed in the presence of nature; and the evidences of elaborate and conscientious human labour add another feature to the impressiveness. Even in the mere symmetry which is so prominent a fact there is a considerable element of external reference: for architecture rests on a basis of utility; and the end or purpose of the building being apparent, as well as the amount and sort of material with which it had to be realised, a large amount of symmetry seems both rational and in many cases necessary, as in the arrangement of the walls and the proportions of the roof. But giving its full due to the element of rationality, whether connected with orderly arrangement of parts pure and simple, or with a further reference to convenience and mechanical conditions, we find that when we trace down the complexity of forms to the simple constituents, and arrive at such a fact as subtle curvature of line or surface, in structure or ornament, we have passed the point where apprehension of order and regularity can be at all adduced in explanation of beauty. To the lines of nature Mr. Ruskin attributes "the universal property of ever-varying curvature in the most subtle and subdued transitions, with peculiar expressions of motion, elasticity, or dependence," and all beautiful lines may be said to be borrowed from nature, though they are of course fairly called *abstract* if they do not suggest any natural object; just as, conversely, we may attribute to objects beauty of abstract line if the lines are such as would appear beautiful even in abstraction. Constant variation then, and not regularity, is the essential feature: otherwise straight lines and circles would be the most, instead of the least, beautiful of the lines which the eye can easily follow. In *Modern Painters* there is a suggestion that these ever-varying curves are typical of infinity; but it would be hard to lay much stress on this point, and their expression of action or force is probably more truly at the root of the matter. Even this more definite kind of suggestiveness, however, marks a great difference from the associational sources of pleasure in human and natural beauty: it results not from a slowly gathering accumulation of simple experiences, but from abstract conceptions only possible to a highly developed imagination. But it has the same negative characteristic—remoteness from any order or plan, from any formulæ of intellectual cognition; nor could any rule about it have been suggested *à priori* by even the most complete knowledge of general mental processes.

If now we turn to the other sort of abstract forms, those presented by music, the difficulty seems in every way greater, since for these not only is there no sort of foundation or suggestion in the phenomena of nature, but all reference to the external world in the way of utility and convenience is also absent. What then is left, it may be asked, except proportional relations; and does it not seem that the secret of our pleasure, so far as it is more than simply sensuous, must lie in divining (or, according to Helmholtz, half-divining) the complicated plan of their adjustment? The answer to this question requires an exact appreciation of the nature and *differentia* of melodic forms.

The impressions on the retina are of *space* in two dimensions: in these two dimensions all visual form is necessarily perceived, and, as they are absolutely homogeneous, the eye is concerned only with perfectly *homogeneous* impressions of line and surface. But *time*, in which audible phenomena take place, has only one dimension, capable indeed by metrical division of exercising our powers of co-ordination and so presenting formed groups, but groups which in isolation are of a very bald and unemotional kind, and entail but a slight advance on the facts of mere nerve-stimulation common to many of the lower animals: and what in music takes the place of the second dimension is a totally different and unique element—the graduated scale of *pitch*. Thus the form of a melody is the product of two lines of perfectly *heterogeneous* impressions, each meaningless alone; a line of sounds and silences, each of a certain duration (arranged on a framework of accents), and a line of tones each of a certain pitch. The form is at every instant the resultant of the two factors, and the dimensions (so to speak) being incommensurable, it cannot be strictly compared to a curve with two co-ordinates and an equation. Consequently no sort of true visual parallel is conceivable, and such analogies of curves and loops as occasionally suggest themselves merely tantalise by their feebleness. Naturally also an explanation of the precise effect of this or that melody is as much lacking as a satisfactory analogy; and fewer would have been attempted had the absolute inter-dependence of the factors of time and pitch been fully realised. For instance, we see a characteristic of one of the factors—pitch—taken as though it covered the whole ground, and we are told that good melody depends on frequent use of the successive notes of the natural scale, or that the skips are from one note to a nearly related note. Now, neglecting the continual exceptions and granting the perpetual occurrence of such progressions, we of course perceive, on reflection, not only that they are as common in bad tunes as in good, but that for each intelligible melody or succession of notes in which they are exemplified, we can, while still employing them, make a million of meaningless ones. So with the factor of rhythm: though metrical balance is as essential to a tune as symmetry to a face, we see that notes may be metrically strung together without presenting anything we could call a melodic form.

Such then being the nature of melodic forms, we may now conveniently remark how they differ from all others. (1) The mere material out of which they are made, *i.e.*, musical tones, is unique in our experience, quite apart from the use made of it. The sensation of musical tone is not presented to the ear by any natural phenomena, even the natural voices of men and animals containing but little of it: it is a sensation produced on exceptional occasions by exceptional means (primarily of course by the "singing" voice), and in early stages of development is probably extremely exciting in itself. That is, the mere producing and hearing of isolated sounds and cries with some musical *timbre* in them would be exciting and enjoyable, without any connexion, or with the slightest and most rudimentary connexion between them. (2) The forms when they occur, and so far as they are impressive, are each wholly new and unique things, not like new postures or alterations and reminiscences of known things. (3) With music, as soon as it can be called such, is associated the sense of motion, with all its powers of physical stimulation. This head, together with the first, does something to explain the fact that, while enjoyment of abstract visual form is a very late product, enjoyment of successions of musical sounds characterises the lowest savages. (4) Precision and definiteness is a marked characteristic of musical forms: this is due to the employment of fixed degrees both of time and pitch, and makes possible an extreme distinctness of individuality. (5) The continuous looking forward and expecting (exemplified in a very simple form in watching the approach to certain tonic landmarks) affords a partial explanation of the *excitement* of music, as marked off from anything that could be given by the impressions perceived simultaneously in space. (6) There are associational elements connected with the primæval use of musical sounds under the influence of sexual emotion, which I have discussed elsewhere: and (7) probably some dim connexion with the phenomenon of speech, owing to the identical feature of a succession of changing sounds, contributes to the effect which melody produces of being *something said*, an utterance of definite significance. These sixth and seventh heads however (like the first) relate to the general impressiveness of phenomena presented in the material of tone, and do not really touch the special nature of the forms. And when we examine our perception of melody, the other heads, though characteristic, seem to take us only a little way. Nor here can we get any trace of such an explanation as was afforded us in the case of architecture by mechanical and dynamical facts: in buildings we perceive a wrongness in top-heaviness and lop-sidedness, a strength in solidity and balance, a weakness in absurd tenuity of shaft, from our experience of things giving way and falling: in music we *feel* strength and weakness where no associations of standing firm or toppling over can possibly come in.

The problem then remains, by what alchemy are abstract forms of sound, however unique and definite and however enhanced in effect by the watching of their evolution moment by moment, capable of transformation into phenomena whose appeal ranges from elementary and describable qualities of pathos or gaiety to phases where separate emotions seem as fused and lost as the colours in a ray of white light; and it is one which will probably always defy solution. The only conceivable explanation indeed would be analogy, and we know not where to look for it. Since sight and hearing are the only senses by which we perceive abstract forms at all, we are, in speaking of either, reduced to a single line of things for illustration or contrast. If we had a few more senses, yielding such impressions as could be co-ordinated and unified into wholly new kinds of forms, so that the inadequacy of curves to express melodies was paralleled by several other examples, we might find it easier to realise that the contemplation of the various forms involved mental and ideal elements special for each class of phenomena, irreducible therefore under any such general rule as we could call an explanation, and that what we loosely call a sense of proportion is of a protean character.

Taking part in these free and tantalising musical forms there are present of course the most marked elements of order and regularity, which are analogous to the regularity we noticed in human beauty and in architecture. The ever-changing evolution of a melody takes place on a basis of regular accents, as natural as the two eyes, two arms, and two legs of a human being, or as the symmetrical columns which support a springing arch, and, apart from other elements, as little able as they to account for the beauty into which it enters. For in music, too, as in the other regions, the self-same regularity is compatible with weak and ugly forms: bar corresponds to bar, as eye to eye, but, whether it be face or melody, the beauty essentially depends on the subtly individual forms of each component part. The special varieties of the element of order in music are worth noting in passing. They are (1) the fixity of the degrees in time and in pitch. On examination this seems essential, as it is certainly universal. Since the parts of time cannot, from their very nature, be compared contemporaneously, their variety would be chaotic but for a fixed scale of subdivision: and we have seen that, since time is of one dimension, form or curvature (to use the one conceivable metaphor) is only possible through variations of pitch. Pitch again is only of one dimension, up and down; and though there are perceptible differences along the line, and so possibilities of contrast, yet as the changes can only take place in succession, time cannot be kept out, and will appear as chaotic unless regularly divided; there is no *via media.* As then the changes of pitch, up or down, are stopped at definite instants, definite points of pitch must necessarily be presented at those instants: and the actual points available for use are given by a system of intervals which has its roots in ultimate physiological facts. (2) Perfect regularity in the succession of main accents. (3) The duality of balance, the building-up of a phrase by subordinate phrases containing equal numbers of bars. This law rests on the facts of our physical symmetry, and I have discussed it elsewhere.

So prominent in music, as in architecture, are the elements of order and regularity, while in these arts there is often no radical objective distinction between subsidiary organisms and larger combinations, that in respect of them one cannot wonder at a view like that of Helmholtz, which tries to follow the "order" right down from the general arrangement of the work to where it is lost to view, and divines a "plan" pervading the domain which we have seen to belong to free form. The subject will receive further elucidation if we now examine the special manner in which Helmholtz connects what he considers as the main æsthetic problem with the results of his work on Sound. His difficulty, we saw, was the supposed existence in a work of art of a reasonable plan, which nevertheless eluded observation: he considers that this difficulty is relieved by the fact that in the subordinate sphere of musical tones and harmony the enigma is actually solved. The relationship of consecutive tones has been found to depend on their possession of some common harmonic or harmonics, not consciously perceived as such except by careful scrutiny and practice; and somewhat similarly the close relationship of consecutive chords depends on their possession of some common note or notes, which again may be quite unperceived by an uninitiated hearer in spite of his perfectly apprehending the natural and easy sequence of the chords. By the presence then of these links, essential though so commonly undetected, "the æsthetic problem is referred to the common property of all sense-perceptions, namely, the apprehension of compound aggregates of sensations as symbols of simple external objects, without analysing them".

The above attempt to define melodic form may perhaps suggest the difficulty presented in this account. The *rationale* of relationship of notes in pitch is known, thanks mainly to Helmholtz; that is, it is known generally what notes present links of connexion with other notes. But this goes no further in accounting for the beauty of the free form than the possession of convenient stones and plenty of cement would go in explaining Giotto's tower. The relation of note to note is parallel to the fact that one stone rests naturally on or is firmly bound to another: such facts of course make the effect possible, but they do not account for it. You may analyse the structure of an arch or of a tune by pulling it to pieces: but you cannot so analyse its æsthetic character. The *reasonableness* which underlay the gradual formation of our diatonic scales (and so gave us our stones of convenient sizes and angles) fails helplessly when we try to read it into a free melodic form. The all-important fact that the notes-in-pitch would be formless if the lengths-in-time and the rhythmic accentuation were altered, has been already noticed: but even neglecting this, if we look only at the pitch-element, no view of *reasonable* connexions will cover a single one of the existent melodic forms, infinite as they are in number and variety of merit. The degrees of relationship, if stated numerically, would present to the mind no kind of plan or order: more and less distant relationships seem (as far as *reason* goes) jumbled up promiscuously; and till the unique phenomenon of the formed series, the unity, presents itself to the musical sense, no guess could have been made as to whether it would be sense or gibberish. One instance may suffice: there is a beautiful air in *Fra Diavolo* which begins with a series of ascending sixths and descending sevenths; the one interval means a tolerably close relationship between the two notes composing it, the other a distant one; yet the sevenths of course enter as essentially into the form as the sixths. If we make each relationship nearer, and substitute fifths for sixths, and sixths for sevenths, it looks as if we ought to get something more *reasonable:* but the beauty will unfortunately be found to have vanished. "The *contrast* was essential," some one may say. Clearly it was *here:* but then we take another tune and equally ruin *it* by just the opposite sort of change in its intervals. Reason must give it up. The power and method of co-ordination is not something abstractable from the phenomenon: we do not know we can co-ordinate tones till we perceive a melodic strain as a unity; we can form no prophecy about its composition till it is there; and obscure as is the secret of its impressiveness we refer it, if at all, to primæval association, to suggestions of strength, of expansion, of free and sublimated motion, not to the connexions of its parts, or relations and adjustments supposed to be penetrable by a more complete and powerful intelligence. It is of course begging the question to call a form reasonable because we first find it beautiful: that is an argument drawn from our own sanity, not from the nature of the phenomenon. When we examine the parts we find reasonableness in the same sense as we find it in a chemical formula which we construct on paper so as not to contradict the atomic theory, and beauty of form is as little a necessary result in the one case as an actually existent substance in the other: it is in virtue of something beyond such conformances that a tune is a tune, and sugar sugar.

The application of the idea of *plan* to single abstract forms seems in fact to involve a radical confusion. A plan implies an end in view. An architect plans the arrangement of his building with a view to certain effects, and ordinarily to certain uses. A composer, though untrammelled by utility, has still his object, and in writing any composition longer than a single melody arranges it so as to introduce his themes with due emphasis and contrast, to develop and interweave them, and to round them off into a larger sort of completeness. The end is to combine a number of impressive things into coherence, so that each shall seem in its place and stand out at its best: but when we come down to the impressive things themselves, the purely musical forms or ideas, no *end* can be imagined until it has ceased to be an end, and is *there ;* a thing which is essentially new, free and individual, is out of all relation to *intelligent* adjustment of parts. A plan by which parts are grouped implies laws with a generality of application extending beyond the particular art, or at any rate beyond the particular manifestation; it cannot underlie the essential individuality of that particular manifestation, and all our efforts to penetrate this only make it recur again and again to account for itself; no fiction of adaptation or conformity will turn it inside out for us. So also in the invention of melodies, if they do not suggest themselves in a flash, the struggle is towards the *whole* form, or at the very least whole organic phrases of it, surmised as through a veil: they gradually clarify into distinctness and are seized; but the process is not of adding brick to brick, but resembles rather the freeing of a statue from a rough semi-shapeless block. It appears to me, indeed, that if we ignore the positive effects of abstract forms and if, remembering merely their negative character of not representing objects, we set to work to imagine *à priori* some plan which shall underlie them and shall be justifiable to the intelligence, we are tied up to symmetry more or less complex, and nothing else. For symmetry is intrenched, as it were, and could call on any divergence to defend itself; and if no intelligible end or aim is proposed, divergence could never make good its cause to the reason. The justification of *freedom*, the certainty of the *right* irregularity or *ἀσυμμέτρεια*, as distinguished from a million possible *wrong* irregularities or *ἀσυμμέτρειαι*, is only given in the particular non-reasoning act of co-ordination. And though an invisible and transcendental *plan*, pervading a work of art, is an idea that may momentarily pass muster, we can scarcely say the same for an invisible and transcendental *symmetry*, in the face of the fact that *actual* symmetry and sameness of parts is precisely what free form shows its freedom in departing from.

If then we abandon the notion that the essential beauty of a work of art lies in conformance to an order which impresses us in spite of, or rather because of, our only catching intermittent and imperfect glimpses of it, we see that Helmholtz's comparison of the unperceived reason of simple tone-relationships to the unanalysable element in æsthetic impressiveness, instead of being an instructive analogy, is only the loosest of metaphors. And even in those simple elements, though the possession by the notes of a common factor does constitute a general rule of connexion which may be called reasonable, the reasonableness seems to stand outside æsthetics. If the progression, *e.g.*, from G to C *does* seem to possess any æsthetic character, it is owing to its presenting the faint rudiment or suggestion of a free form. The mere fact that two things possess a common element, whether consciously apprehended or only felt, contains in itself no ground of beauty. If we apply the same perception of relationship in some other region of phenomena, we get not the slightest sense of beauty: we receive no satisfaction, for example, from contemplating a square on one side of which is inscribed a triangle, though the two figures are similarly related by possession of a common element. Nothing could *à priori* have led us to expect that in connexion with one set of sense-impressions a string of such resemblances more and less distant would be a factor in an absolutely new phenomenon, a free form. And if any further proof were needed that the relationship of the notes is a necessary characteristic of the material of music and not an explanation of its beauty, it would be found in this, that just as the same bricks may be used over and over again to build many different forms, without its ever being discovered that they are the same, so instances of the same notes occurring in the same proximities occur in melody after melody, but the forms being wholly different the fact never obtrudes itself. Nor can we feel the following illustration which Helmholtz gives as anything but delusive. He says that "when a father and daughter are strikingly alike in some well-marked feature as the nose or forehead, we observe it at once and think no more about it; but if the resemblance is so enigmatically concealed that we cannot detect it, we are fascinated"; and that if a painter in drawing the two heads combined a difference of expression with this indefinable resemblance, we should prize the effect as a high proof of his skill. But here our pleasure (1) would not be evoked if the faces were not intrinsically interesting; (2) is dependent on most complex human emotions. In the supposed case, not only would our imagination be occupied with the human relationship of the persons, but we should be comparing two highly organic forms or units, whose interest to us is connected, as we have seen, with a prolonged course of varied experience and association; and the right musical analogy would be two organic melodies, quite different and yet intuitively perceived to be by the same composer; not two simple and ultimate sensations, the perception of whose resemblance or relationship involves the very minimum of co-ordination. We seem then to find, even in this rudimentary phase of co-ordinative action, fresh support for our main position: just because the principle of tone-connexion, the principle of the perceptible connexion of two things through their joint possession of a common part, *is* reasonable—is applicable, that is, in many different ways, thus implying some *general* mode and habit of apprehension—it is easy to show from other instances that such a general mode of apprehension in no way entails æsthetic pleasure. Down in this elementary region of what, to revert to our old metaphor, we must call the masonry, not the architecture, of music, as formerly in the symmetry which was seen to be in so many directions a necessary and conditioning attribute of beauty, we have found an order which reason can apprehend. But underneath and compatible with such order and attributes we have found everywhere an essence and a freedom inexplicable by and unconnected with reason: and the mental processes involved, whether connected with imaginable and definable associations, or with obscure and inexplicable suggestions, seem to lead us in every case into a sort of *cul-de-sac* where the phenomena, however linked together by their emotional effect on us, appear objectively as ultimate as the simplest sense-perceptions.

In conclusion, I would suggest that the indefinable ideas of expansion and infinity which seem so often to be a feature of the highest æsthetic emotions do not necessarily connect themselves with the grounds laid down by Helmholtz. It appears to me that the surmise is not of infinite arrangement and order in the work contemplated, objective facts to be more and more comprehended and appreciated by increased intelligence; but of infinite potentialities in one's own being, subjective facts to the apprehension of which in special experiences the windows of the soul seem momentarily opened. Such unity as is surmised in connexion with the subjective exaltation is not a unity of law or plan, supposed to lurk hidden in the special work, but is a general unity in the whole range of the phenomena which cause us lofty emotions, corresponding to the persistent unity of our own *ego;* for this *ego* is inevitably led dimly to divine hidden relations between things which are akin in having deeply impressed itself.

EDMUND GURNEY.

IV.—ON CAUSATION.

THE ordinary notion of causation, with which we must begin as a preliminary, may be taken to consist of two essentials, first, the notion of power or efficacy, and second, the order or rule under which that power works. Neither of these alone constitutes causation, and at the same time nothing else but these is requisite. Neither alone is sufficient; for take power alone, and there is nothing to connect it either with cause or with effect, and therefore nothing to connect cause and effect with each other; some order or rule of the power is required. So with order or rule taken alone; it is not the order in causation, unless some movement or change is pre-supposed in the phenomena, of which it is the order. The order of the squares on a chessboard is not an order of causation.

Again, nothing else but these two notions is requisite. To include the notion of originating in the efficacy, and thus transform it into creative efficacy, or to include necessity or uniformity in the notion of the rule, would be including too much. These notions may possibly turn out to be legitimately derived from that of causation (of this I say nothing at present), but they are not *primâ facie* included in it. They are not suggested to the non-speculative mind by the word, and therefore not required to be justified as valid, in order to justify the ordinary notion of causation.

What I propose to do in the present paper is, first, to examine the ordinary notion of causation, and see what it logically includes, supposing it to be a valid notion; in the next place to see in what that validity consists, and what the range over which it extends. Having done this, the result may be summed up in a definition or set of definitions, supplementary to the analysis which we shall obtain of causation.

This task is naturally and, in my opinion, inevitably reserved for that method or school of philosophy which is content with simple analysis of phenomena on their subjective side, content to occupy the position of a critical spectator of the panorama of experience, without theorising about its origin. The reason of this may be stated in few words. Modern absolutism assumes as an ultimate notion,—assumes, that is, as something which, not needing explanation itself, contributes to explain everything else,—either the notion of efficacy itself, or some special mode of it, efficacy or power being, as we have seen, one of the two constituents of causation. It cannot therefore be competent to explain the notion of causation, when it accounts for one of its essential ingredients by an *assumption* which involves it.

Take, for instance, philosophical Materialism, which is an absolutist doctrine. It assumes, over and above phenomenal force, which is always reducible to an expression in terms of the relative positions and motions of portions of matter, another force not apprehensible *per se*, which is supposed to be either inherent in matter, or, if prior to it, to issue in its formation and produce its changes. Take Hegelianism, which is an idealistic absolutism. It assumes an efficacy in pure Thought, by which *Nothing becomes Being*. Take Schopenhauer's or Von Hartmann's theories, in which a creative efficacy is ascribed to Will. Now, however different these theories may be among themselves, and whatever may be alleged in their favour in other respects, a question which this is not the place to discuss, one thing is true of them in common, and that is, that since they all assume, as an ultimate source of explanation, the notion of unconditioned efficacy, they cannot be competent to examine the validity of the notion of causation, of which efficacy is an essential constituent. It is open to them to examine its other constituent, the notion of order or rule; but causation as a whole is closed to them by their own act.

Nor is it open to them to plead, and this is important, that what they assume is merely the *phenomenon* of change or motion, which for convenience may be summed up in the term power or efficacy, that they merely take the phenomena as they find them, and that they find them with change and motion inseparably involved in them. That indeed is true, but it is not true that they assume no more than that. When they assert not merely power or efficacy in the abstract, but a particular mode of it (for Force, Thought, Will, are such particular modes), as part of their ultimate account of existence, they show plainly that they assume more than the phenomena alone contain. And where, I would ask, has been given the proof, by Materialist or by Idealist, that his particular mode of efficacy is a necessary and ultimate reality; where is the assumption of it justified as a necessary element of all philosophical explanation?

The question, then, escapes the Creationists and falls into the hands of the Criticists. What does the critical school make of it? Hitherto not much, I am bound to admit, judging at least by one of its latest attempts at solution, Mr. T. S. Barrett's *Philosophy of Science* (2nd edition, 1872). His solution is, that the notion of power or efficacy in causation is analysable into the notion of logical (which is also conditional) necessity (pp. 120, 124, and 131); and that to this extent, that is to say so far as *observation* warrants our logic (p. 134), our logic warrants the attribution of causal necessity to phenomena objectively, in opposition to Hume's doctrine that the attribution in question was wholly illegitimate, being an illogical result of habit and custom.

But this is no real solution, for two reasons. First, it is not final, for if causal efficacy is a creature of logical necessity, a further need arises for an analysis of logical necessity. And secondly, its range is limited, for only so far as *observation* bears it out is the attribution of necessity to *phenomena* justified. The professed solution lands us and leaves us in the midst of all the old questions as to the relation between logical and objective necessity, and the limit between legitimate and illegitimate attribution of the latter is left as shadowy as ever. Part of nature would be reduced under the sceptre of law, part left possibly subject to chance. It is a fallacy to make objective necessity depend on logical, and logical on observation, unless you can show in observation itself, prior to logic, at least the rudiments of necessity. Your ultimate source of objective necessity is observation of phenomena, which according to your own account can never yield it, only that this is masked by interposing logical necessity to render the transformation plausible. Logical necessity limited by observation is as illegitimate a source as habit or custom.

Unless, I repeat, you can show in observation itself, prior to logic, the rudiments of necessity;—for there it is that, to my mind, the kernel of the whole matter lies. The necessity in causation is not merely a logical but a metaphysical necessity; it cleaves to sensation and perception, prior to logic and to thought, and it cleaves to every instance of them. It is not *in intellectu* merely, but *in sensu*. It is something which observation does and always will justify, because it is involved in the process of observation itself.

Returning, then, to the two constituents of causation, efficacy and the rule under which it works, let us bring these two face to face with the process of observation. By saying this I mean to put aside the inquiry, what particular phenomena it was which probably gave us our first notion of efficacy, or of rule; whether it was the sense of our own agency in volition which originated the notion of efficacy, which notion we afterwards applied to physical events, or whether the perception of physical force first gave us this notion, and we afterwards applied it to explain volition. Again as to the notion of rule, we need not now inquire whether perceived purpose in our own volitions, with the perception of the means to their attainment, was the origin of the notion, or on the other hand the observed regularity in physical occurrences.

Let us observe the process of observation as we now have it in our power to do, and with the advantage of previous experience in our minds. Let it be another condition of the inquiry, that we observe the process of observation and not its results, which in other words is to observe the subjective side of the process, as a series of states of consciousness, not the objective side, as a series of objective events. Phenomena objectively taken give no indication of the *nexus* between them. It is in vain to look in that direction for the rule in causation. This is now admitted on all hands. But, taking the stream of states of consciousness as our object, let us see whether we do not find both efficacy and rule involved in it, and that in such a shape as to show them to be the rudiments of necessity and uniformity.

Yet another condition. There is one feature in the process of observation, subjectively taken, from which we must abstract, in order to satisfy the requirement of its being *prior to logic*. The process of observation is already a logical process, being a volitional one. We must therefore abstract from the element of attention for the purpose of knowing, which is its logical element, if we would see whether, in what remains of it, the rudiments of causation can be found. We must take the process of observation and reduce it to a process of what I have elsewhere called spontaneous redintegration, in order to see whether it contains a *nexus* between its states of consciousness, which is the foundation of the causal nexus.

I think I shall then be able to show, that *efficacy* which consists in the irresistibility and continuity of the stream of consciousness, and *rule* which consists in the fact that the stream, though continuous, is distinguished into portions by similarity as well as difference in the states composing it, are together the rudiments of the full notion of necessary and uniform causation.

But before entering on this examination, it will be better to make another approach from the side of cause, in order to see more precisely what it is that we are required to find in the rudimentary stream of consciousness. When we ask for the cause of anything, we are asking for some particular circumstance or combination of circumstances, upon which the effect in question depends; we are not asking for the *whole* set of circumstances of which the effect is a *part*. We want some circumstance or combination of circumstances to be singled out from the whole, and shown to be that upon the occurrence of which the effect occurs, no matter what the other circumstances may be. It is a partial inquiry into the dependence of one part of the whole upon another part of the whole.

We may make this inquiry in two ways, which may be distinguished as judicial and scientific. In judicial inquiries we want to know the single cause of a single effect, for instance, the cause of A's death. In scientific inquiries we want to know the common cause of a common effect, for instance, what gives fire its power of burning wood, in all the cases where fire and wood are found. But alike in both kinds of inquiry the dependence between cause and effect is a particular one, in the sense that we are asking for one circumstance or set of circumstances, whether these are repeated in several similar cases, or are found only in a single case. We leave apart, as being outside causation and irrelevant to our purpose, the inquiry what the *other* circumstances may be in which fire is found, *e.g.*, whether it is in London or in Paris, and seek to discover only those circumstances which determine its burning quality.

There is clearly some dependence, some *nexus*, between cause and effect, which we call causation; the question is, in what does it consist? Some have recourse for an answer to the notion of efficacy; others to that of rule. That causation is efficacy operating under rule is clear, but in *which* of the two notions are we to look for the source of the causal nexus? Kant's answer was, in the *efficacy*, which notion we import *a priori* into phenomena from a category or form of thought involved in all mental action. In virtue of this alone we can say "the sun warms the stone," as distinguished from "the sun shines and the stone gets warm". The Humian answer is, in the *rule*, which we get *a posteriori* from observing phenomena to be regular, and upon which we, by force of habit, superinduce illogically the notion of efficacy.

Upon Kant's answer arises the further question—How comes the mind by its category? Upon Hume's,—How come phenomena to be regular? To which questions I know not that any answer has yet been given, unless it be by the *assumptions* which are made by the materialistic and idealistic absolutists respectively, as was shown at the outset of this paper. Nor, I think, can any answer be given, so long as we keep within the lines of the partial view in which, as we have seen, the question arose. Just as we can never see a reason or causal nexus, other than sequence or co-existence, between this particular phenomenon and that, say between fire and its burning of wood, so neither can we see any between this instance of its burning wood and that instance of it—any reason why the event should happen in that way twice, merely because it has happened so once.

Two things are requisite: we must go back to the perceptual order from the conceptual, and we must extend the instance of the perceptual order till it embraces the whole history of the universe. I mean by this, that we must first take the *judicial* way of inquiry as distinguished from the *scientific*, and secondly that we must consider the particular event under discussion as occupying its *one* place in the whole series of events which is the history of the universe.

Take for instance the cause of combustion of wood. It will not help us to put the question as one into the *invariable antecedents* of the combustion of wood. *Combustion of wood* is a general term covering innumerable instances, each of which has antecedents of its own. If you had discovered the invariable antecedents of the combustion of wood, they also would be described by a general term covering innumerable instances. The general term for the cause and the general term for the effect are short-hand ways of expressing the whole series of instances which each of them covers. They stand for these instances, and the truth of propositions concerning them depends on the truth of propositions concerning the instances which they cover. No doctrine is more strongly insisted on by the inductive experientialists than this. It is in vain to expect to find the secret of causation by any juggling with the symbol apart from the things symbolised. General terms, as they are (perhaps improperly) called, cannot as such disclose the causal nexus. If it is to be disclosed at all, it must be by the particulars which the general terms represent. In other words, we must go back to the perceptual, instead of keeping to the conceptual order, to the judicial instead of the scientific order of inquiry.

But in this order, one event has one and only one possible cause, one and only one combination of circumstances, upon which it rises on the scene of being. To imagine that a plurality of causes for one and the same event is possible, is to be deluded by the fallacy of taking the general term, by which the effect is described, for the name of a single event, when in reality it covers an indefinite number of events describable by the same name; the combustion of wood, for instance, as a single instead of an indefinitely plural event. *Then*, no doubt, it is true that a plurality of causes is possible, and not only possible but necessary, one for each case of combustion. If however the event is really single, that is, is taken as the object of *perception*, *e.g.*, A's death, then it has and can have but one combination of circumstances as its cause; and that one combination of circumstances no other than this single and sole effect.

Farther, our ignorance of the combination of circumstances causing A's death, which renders us liable to fall into the fallacy of considering a plurality of causes possible, and which gives rise to the rule of logic, *posito consequente nihil probatur*,—this our ignorance of the cause would be removed, if we had a more determinate knowledge of the effect as an event *in perception*. The more complete knowledge of the physical circumstances composing the event of A's dying would go far in most cases to reveal the circumstances which immediately preceded and accompanied them. The effect would be seen as growing out of its cause, the cause as being transformed into its effect, so that the distinction between them which is drawn by the instrumentality of language would appear what it is, a coarse and clumsy artifice, inadequate even as an expression of our thoughts in conceptual order, the creature of which it is; how much more inadequate then to give back the infinite subtilty and the infinite variety of the perceptual order, of that order which is nature herself.

Names are the creatures of the modification of perceptions by thought, and the objects or events which they signify are roughly hewn, roughly kneaded, compositions of perceptions, on the principle of classing like with like, and excluding unlike perceptions. The excluded perceptions really belong to the individual objects marked by general names, though the name excludes them. "Death" for instance is a general name, marking certain common features of every particular case. It is only by saying "A's death" that we can mark the fact of its singularity, because we know from other sources, that this is an event which can occur but once. But the same thing is true of every event and every object that can be named. Nothing occurs more than once.

Again, when by considerations like the foregoing we have restored their perceptual meaning to general names, and so take the objects signified by them as single objects of perception, even then the objects so signified are rough and coarse masses, of which but one or two prominent features are indicated by the names, the rest being left as it were in shadow. The subtilty and variety of nature is not seen in them, but merely suspected. We do not perceive it as it is, but make the discovery of it as it is the purpose of our study. It is a mass of perception which we *might* have, but have not. We know it in outline only, or rather we know it as an indefinite outline wavering round a prominent point which is the circumstance from which the name of it is taken. "A's death" is the mass of phenomena immediately preceding and immediately following what we call the *moment* of death.

Every object or event, then, for the cause of which we ask, is a mass of perceptions occupying some portion of time; and the circumstance of its having duration explains why it is that causes are simultaneous or co-existent with their effects, as well as previous to them. For unless other circumstances continued to exist, along with those which we call the effect, and besides those which have preceded it, the effect also would cease. In building a house, there are actions of the builder which precede his actual raising of the walls; he handles the bricks before he lays them; but the ground on which the house stands continues to exist during and after the whole process of building. In other words, causes are concomitant as well as antecedent to their effects.

Why then do we usually speak of them as antecedent only? For the same reason which leads us to characterise them as *invariable* antecedents, namely, that in asking for a cause we not only adopt a partial point of view, but we adopt the order of thought, instead of perception, in putting the question. We first separate the effect in thought, and then ask what must be pre-supposed in order that we may *understand* its arising. We ask for a cause which may render it intelligible, and then treat this cause, which is previous to our understanding the effect, as if it were also previous to the production of it. When, however, we see that perception, not thought, is decisive, then we speak no longer either of antecedent or invariable antecedent as synonymous with cause; we speak of *conditions* antecedent and co-existent. The distinction of the two classes, antecedent and co-existent, makes us break up the unity of our previous conception of *cause*, which is always an unity, and replace it by the conception of condition, which admits of plurality.

These are not the only consequences of adopting the conceptual instead of the perceptual order of thought in discussing causation. Another consequence is the divergence of men of science as to what is really intended by the tenet of the uniformity of nature. One man holds it to mean that the same conditions will invariably be followed or accompanied by the same results, *e.g.*, that the boiling point of water will always be 212° F., *if* water remains water, *if* it continues subject to an atmospheric pressure of 15 lbs. to the square inch of surface, and so on;—which gives the tenet all the undeniable validity of an identical proposition, but only at the cost of withdrawing from the range of its positive assertion all facts which can be regarded as conditions, that is to say, virtually, all facts whatever.

Another maintains that much more than this is intended by the tenet, namely, that water *will* remain water, that it *will* continue subject to an atmospheric pressure of 15 lbs. to the square inch of surface, &c., and that the boiling point of water *will* consequently remain 212° F.;—which renders the tenet indemonstrable, except so far as it is a mere record of past experience.

The reason of this divergence is, that both parties take *sameness* in a sense exclusive of difference, that is, in its logical and not its perceptual sense; and then the one sees that the sameness of the conditions involves the sameness of the results, the other that difference in the conditions can be only hypothetically excluded from the phenomena. Difference as well as sameness is involved in every sequence of phenomena; and it is the sameness *in the midst of difference* that is the ground of uniformity. Without difference there could be no change; but change is of the essence of nature. The sameness attributed to the laws of nature, therefore, can mean only a high degree of similarity between the phenomena and phenomenal relations of which those laws are the expression. How much variety and newness, how much similarity and repetition, are to be expected in nature, where we have not had actual experience, is a thing to be judged of by inductive *a posteriori* methods. Who can tell, for instance, whether the boiling point of water will be subject to change, within what limits of degree, and whether the change will be sudden or secular, except by probabilities founded on observation and experiment?

In this way it is that we arrive at what has been called the *material continuity* of nature, the graduation of its changes,—*natura non facit saltum, non patitur hiatum.* And this law or principle of material continuity is, I think, the practically serviceable outcome of the tenet of uniformity, since it is applicable to the unknown content of nature, and not merely, like uniformity, to the form or framework of nature, which is known of every part alike, because involved in every instance of knowing.

The tenet of uniformity, if it is to have any significance at all, cannot be taken either to exclude the possibility of change in phenomena, or to exclude it only by a logical hypothesis. Taken in the first sense, it would not be true; taken in the second sense, it would not be an objective fact of nature. What then is the sense in which it is both true and an objective fact of nature? It can be only this: as we find perfect sameness between two phenomena only when we reduce them in thought to *one* phenomenon, for nothing short of this excludes objective difference between them, so with the course of nature as a whole, there is no strict sameness in it, until you consider that it is the one and only course of nature in existence. It has an identity equal to that expressed by the logical Postulate of Identity, *A is A.* At the same time, all its parts are necessarily connected one with another, including the similarities which are observed between them. And these similarities, in the midst of dissimilarities, are what is meant by uniformity. But the uniformity is perceived as necessary and objective, only by being perceived to be contained in and to form part of the analysis of the whole course of nature, as one and the same course. This view of things brings us back to the perceptual order, which, as already said, is the order of nature itself, subsisting before and subsisting after *our* modification of it into general terms, by logical processes based on *A is A*, which is the point of contact between perception and thought.

Imagine a curtain, as at a theatre, painted with variously coloured stars, gradually unrolled and half-way lowered; and let its unrolling represent the course of time from past to present, and the stars the individual objects and events which compose experience and are the content of time. The lowest horizontal line of stars, which is the latest unrolled into view, will stand for the effects last produced, the world as we actually see it, and each star may be imagined as receiving rays from some or all of the stars in the line above, and as both giving and receiving rays in interchange with those right and left of it, in the same line. The stars are objects of perception; and those stars from which rays come to others are the conditions of those others. The stars again which are the conditions of these are the remoter conditions of those. And the whole surface of stars is one network of causes and effects, the stars in each line containing the antecedent conditions of the stars in the line below it, and the stars in the same line containing the concomitant conditions of each other. The efficacy of the conditions consists in the fact of the unrolling of the curtain; the rule which it follows consists in each star having its own place and no other upon the surface of it; and the necessity of the rule in the fact that, owing to the continuity of Time, there is no Universe but one.

Still it may possibly be asked, But whence the uniformity, whence the regularity? You have shown, it may be said, that the rule by which objects and events take their place on the scene of existence is a reality, but it would be equally a reality whatever might be the character of its content, if it were chaotic equally as if it were regular and uniform? What is the reason of its being regular and uniform? We are still in want of an answer to that question which arises, as noted above, upon Hume's view of causation. True, the mind is capable of perceiving similarity and difference, of retaining and comparing its impressions, of classing similars together and so forming the individual objects of experience, such as fire, wood, and burning. But that is not the question. Neither is it the question, how there comes to be *necessity* in the order of phenomena, for this there might be if nothing ever recurred again, but the phenomena were a series of units totally different from each other, without any similarity in their difference. But the present question is this,—How comes the series of impressions to be such that similarity as well as dissimilarity can be observed in them, and again, such that sequences between them are observable as similar? This question seems to hunt the problem into its last retreat. Let us therefore pay exact attention to the process of observing similarity and difference; which brings us back to the point from which we diverged at p. 503, in order to make a second approach to this the main question.

The process of observation includes voluntary attention to states of consciousness, which are only then said to be observed, when we bestow that attention upon them. But what states of consciousness are those which we observe? Do they consist only of what Hume called *impressions*, or do they also contain what he called *ideas* of impressions? It is plain that they include both. For an impression continually recurs, and its recurrence is an idea, as for instance, when I think of a friend immediately after he has left the room. The idea is similar to the impression. When I see him again, I have an impression, and now the impression is similar to the idea. Though impressions are the sources of ideas, yet I cannot compare the impressions made by a single thing without comparing an impression with an idea. Time carries away, as it brings, our impressions, and transforms them into ideas. The train of what I have called spontaneous redintegration, a train of states of consciousness previous to paying it any conscious attention for the purpose of classification, previous to thought being exercised upon it, is the true object of observation, and not the impressions alone which are the sources of the train. We never have impressions unmixed with ideas; they do not come isolated, but bound into a train by ideas which connect them. Our earliest trains of consciousness include ideas as well as impressions, memories as well as presentations. If they did not, the result would be that we should have no unity of consciousness. There would be, in place of a train of consciousness, a succession of separate states of consciousness without any nexus between them, and one in which the perception of self could not possibly arise.

Not that the perception of self is given by the mere fact of consciousness being a train, still less that the perception of self is the condition of its being so, as some idealists hold. On the contrary, that consciousness is a train, is the condition of self-consciousness arising in it. Many trains consisting of similar and dissimilar states of consciousness must have existed, before there can arise in one of them a perception having for its content, or object, the unity of the previous trains. The unity of the trains of spontaneous redintegration, and of the several portions of any one of them, is the fact known as the unity of consciousness; and its existence is the indispensable condition of its being observed and perceived as an object called *self*.

How does this bear upon the question of the ultimate source of uniformity? In this way. Just as the unity in trains of consciousness is the condition of its being perceived *as unity* and called self, so the similarity of perceptions contained in trains of spontaneous redintegration is the condition of its being perceived *as similarity* in classifying states of consciousness. Similarity and difference in the perceptions of spontaneous redintegration (which is the most rudimentary shape of consciousness), bound together by the nexus of time, as for instance when an "impression" occurs simultaneously with its "idea," and either together or in sequence with other ideas and impressions, *are* the things about which our question was put,—Whence came they? To ask whence *they* come is to ask whence consciousness altogether and as a whole comes; and this is a question which cannot be asked without getting the answer *from eternity*. Consciousness has no *whence*, for every *whence* must be stated in terms of consciousness.

Observe the difference between the Humian position and the present one, with regard to the source of uniformity in phenomena. To the Humian, uniformity is a particular fact of observation, which requires to be, but never can be, accounted for. To us it is an universal fact of observation, which does not require to be accounted for because it is already found in every instance of that from which alone the account could be drawn, namely, consciousness. Hume saw no necessity in phenomena, probably because in the first instance he expected to find it in the shape of something corresponding to the terms will or force; disappointed there, he turned to the observation of order in phenomena. Humians see no necessary uniformity in phenomena because they expect some logical law to which uniformity may be referred. Both are looking in a wrong direction. The analysis of consciousness furnishes what they ask for, though certainly not what they expect to be told of. They want an answer in terms of will or force or self-evident axiom; but this is not the answer of analysis.

Still it must not be supposed that we find in spontaneous redintegration the necessity and uniformity of nature full-blown. We find there only their rudiments. There is uniformity, but it is not yet seen to be universal; there is necessity, but it is not yet seen to be inevitable. As perception is developed into thought, and consciousness into self-consciousness, and as the laws of the world are gradually discovered and take their place in our conception of it, so *pari passu* is developed the perception of the full range of the facts of similarity, dissimilarity, sequence, and co-existence, which are found in all rudimentary experience. This experience, which has been called spontaneous redintegration, is a varied stream or moving mosaic of consciousness, in which the continuity of the pieces is the source of our conception of necessity, and their similarity, in the midst of dissimilarity, that of our conception of uniformity.

Without continuity there can be no unity of consciousness; and without *some* similarity at any rate there can be no continuity. Similarity is not confined to the matter or content of consciousness, but belongs to the form of it as well. When, for instance, I run my finger along the edge of the table from corner to corner, I am conscious of a continuous succession of feelings in time, all alike in point of content, being feelings of touch, and all alike in point of form, being feelings occupying space and time. Before arriving at the second corner, my feelings in moving from the first corner have become "ideas," and I compare them with my feelings on approaching the second corner, only by means of memory. The continuity of feeling includes, in this case at any rate, a similarity of form as well as of content. Putting aside however the peculiarity which some feelings have of occupying space, we may say of all feelings alike that they occupy time. And we may represent the continuity of time as a case of similarity, if we assume that feelings come to us originally as different from one another. Even on this assumption, the different feelings have similarity as well as difference, in their alike occupying time. *Some* similarity therefore remains, even when we assume the feelings to be different in their material quality, and at the same time abstract from their continuity. But when we again attend, as we must, to the fact of their continuity, then what was similarity rises into sameness, inasmuch as one continuous time is common to all the different feelings. The sources of the necessity and uniformity of causation, which are also the explication of its two constituent notions, efficacy and rule, are thus closely bound up with each other in the most rudimentary process of consciousness. And these and these only are the answer to the questions,—Whence the regularity, whence the uniformity of nature?

Causation, then, as existing between objective phenomena or "things," is invisible so long as we look at them from the objective side; and becomes visible only when we take them subjectively, as conglomerates of conscious states. We must take causation *as we know it*, just as we must also take "things". Then and then only can their nexus be seen. But it is not the nexus which the objectivist expected to see. Causation between "things" is just what causation between states of consciousness is, namely, a *relation* between portions of one ever-changing stream of phenomena, to which neither beginning nor end can be assigned. The notion of force, or influence of any kind, moving from or exerted by one object upon another, or originating the train of existences itself, vanishes entirely from this point of view, and is replaced by the relation just spoken of.

But force and influence, it must be added, are quite as invisible from the objective side, as they are from the subjective. If we conceive causation as objective force or influence, then we must regard the objects exerting it as *substantiæ*, and if we apply this conception to the whole train of existences, we must imagine a hyper-existent *substantia* to exert the original creative force or influence. And both are fictions of the imagination, which have no warrant in facts. On the other hand, the moving mosaic of consciousness affords, when analysed, a sufficient account of our whole notion of causation; and there is no further account possible of the moving mosaic itself, because every account that can be given must be a part of that mosaic, and therefore analysable in the same way.

Before quitting this part of the subject, I will notice a remarkable parallelism, which may throw some little light on the origin of our notion of force. What change is in consciousness, that motion is in physical matter; that is to say, it is its most fundamental state, as change is of consciousness, having no state of rest prior to it, all portions of matter being from the first in motion. The rest which we perceive empirically in matter is a result of motions opposed to each other, and is more properly to be called equilibrium, whether obtaining between masses, as in the balance, or between molecules, as in cohesion.[1]

Nor is this conception forbidden by what is known as the *inertia* of matter. This, as it is often falsely understood, is, in the first place, not a percept but a concept, and one without any percept behind it. By this I mean, that, when we try to construe motion in thought, we do so by contrasting it with rest as its condition or correlative in *thought*; and this *thought* of rest we are then tempted to erect into a condition of real motion, calling it *inertia*, though there is nothing prior to motion in matter. *Inertia* properly understood, and according to Newton's explanation (Def. III.), is likewise a concept, but it is not conceived as the condition of motion. It is identified by Newton with *vis insita* or *vis inertiæ*, and means that power of resistance (namely, to an external *vis impressa*, if exerted upon it) by which a body perseveres in its state *either* of rest *or* of uniform motion in a straight line, and which is always proportional to the mass of the body to which it belongs. This *vis insita* or *inertiæ*, says Newton, differs not at all from *inertia* itself, except in our mode of conceiving it; by which I understand him to mean, that the term *inertia* describes the very same thing as a property or attribute of mass, which the term *vis insita*, or *vis inertiæ*, describes as an agency of mass, opposed to an external agency, the *vis impressa*.

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[1] See Professor P. G. Tait's Lecture on Force, in his *Recent Advances in Physical Science*, p. 359, 2nd edition.

Thus *inertia* is conceived as the antithesis, not of motion, but of change from any prior state of matter, whatever that state may be; where nothing whatever is asserted about the ultimate or elementary constitution of matter, but the prior state is taken to be, indifferently, either one of empirical rest or one of empirical motion. The change spoken of is between *successive* states of matter, whereas, if we understood it of its elementary constitution, (as we do, when we erect the correlative *thought* into a *real* condition), we should have to imagine rest and motion *simultaneous* in every single least particle of it, which is a contradiction. The elementary constitution of matter, if we take it in this isolated way, as we sometimes must, to clear it of cobwebs, includes motion only and not rest; but this involves action and reaction of its parts, and these cover the entire phenomena.

There is therefore no ground for identifying the concept of *inertia*, assumed as an aid to thought in construing either the phenomenon of motion, or that of action and reaction, with the empirical perception of rest; much less for attributing it to matter as its essential property, and as the condition of motion. If it indeed were so, then motion, not being original, would require an originating cause to account for its existence. But as it is, action and reaction, which involve motion, are, so far as we can see, involved in the very existence of matter. Matter in motion being assumed to exist, then the laws of physical nature are the laws of the action and reaction of portions of matter on each other; the motion is the efficacy, the laws are the rule under which it works; and the distinguishing any portions of matter as separate from one another necessitates our conceiving the motions, to which they are subject, as motions belonging to and residing in each several portion; whereby arises the imagination of a *vis insita* and a *vis impressa*, each *separated* motion becoming particularised as a force or agency exerted by each *separated* mass.

Action and reaction are, in point of range, co-extensive with the conception of potential and kinetic energy, and they cover the whole phenomena of matter; they *are* the phenomena. But *inertia*, and *force* the cause of motion in it, are fictitious conceptions concerning the supposed elementary constitution of matter, a thing already covered by action and reaction. But they derive their origin, and therefore it is that they possess an appearance of validity, from legitimate conceptions of the same name, which are introduced as part of the machinery of thought in interpreting the phenomena of action and reaction.

We have next to see how a working definition of cause can be framed, supplementary to the analysis of causation, without running counter to any of the results just obtained. First, we must not include (though we need not deny) the notion of force or influence. Secondly, we must frame our definition so as to be applicable to events and objects in their perceptual character, as well as their conceptual, or in other words as considered by the judicial mode of enquiry as well as by the scientific. This requirement will be satisfied if we can omit the notion of invariability in the antecedents, without injuring the universality of the definition. In what quarter shall we look? We must go, I think, to the notion of *condition*, that notion which, as we have seen, admits of plurality; and in order to define a condition, we must look to the character which all conditions bear, namely, their negative, limiting, or *sine qua non* character. The sum of these will then yield the positive character of a cause.

It must be remembered also, that all inquiry into causation is a partial enquiry; it pre-supposes a whole to be already broken up into parts, the connexion of which with each other is what is sought for in causation. Anything considered either as a cause, or as an effect, is taken as an *unit* for the purpose of that consideration; its analysis into parts within its own limits is omitted. Still a conception of causation which could not be extended, so as to be applied within as well as without such an arbitrary distinction as this, when, as we have seen, the texture of consciousness is the same moving mosaic throughout, would be but an imperfect one. We always practically look at a thing as determined not only by what lies outside it, but by its own constitution as well. We look upon the parts of a thing as in some sort determining the whole. Whether the whole may also be held to determine the parts, and in what way, are further questions which it is not here the place to consider. They lead on into another branch of the subject, to Teleology, or the theory of Final Causes, which is not necessary for the consideration of causation as usually understood. And it will be remembered that the curtain of stars, in our illustration, was imagined to be only half unrolled.

Lastly, the conception of causation must be applicable to our knowledge of things, as well as to the things themselves.

Evidences may just as fairly be considered to be causes or conditions of *beliefs,* as events of events; they are in fact subjective events. Causes and conditions of this character are properly called *causæ cognoscendi;* while those of the objective order are called *causæ existendi.* Causes and conditions again, which express the analysis of a whole into its parts, as opposed to the relation of the parts to one another, are a third order of causes. In this order are united the objective and subjective characters of the two former, since we must always take a thing to *be* what its analysis, if complete, would make it *known as being;* and the causes belonging to it are therefore properly to be called *causæ essendi.* Strictly, no doubt, analysis is not causation; still usage has determined that the name and the notion of causation should be applied directly to that distinction, of whole and parts, which was the ground out of which by limitation it sprang, namely, as relation between the parts only.

Our definitions then may be taken thus:

Existendi.

Condition: Something without which another given thing would not exist.

Cause: That combination of its conditions upon the completion of which another given thing begins and continues to exist.

Cognoscendi.

Condition: Something without knowledge of which another given thing would not be known.

Cause: That combination of its conditions upon the completion of which a complete knowledge of another given thing arises.

Essendi.

Condition: Something without possessing which a given thing would not be what it is.

Cause: That combination of its conditions the completion of which is the complete analysis of the thing itself.

These definitions will, I think, be found to satisfy the requirements of the ordinary notion of causation, for they are based on the analysis of those rudimentary trains of consciousness, on which the validity of the notion itself depends. In the ordinary notion of causation is included a positive though always a phenomenal efficacy, not a noumenal one. This positive character of the efficacy is expressed in the definition of cause by the words "begins and continues to exist". It is absent from the definition of condition, where it is merely said that without the condition the effect *would not* exist. The combination of the negative conditions gives them their positive character; yet without assigning to them a noumenal efficacy of production. The effect occurs as a fact, in immediate sequence to those of the conditions which are antecedent, and in immediate co-existence with those of them which are concomitant; and there is no room, so to speak, for a noumenal efficacy to intervene.

Are then such things as Force, Thought, Will, and Substance, excluded by this analysis from the kingdom of realities? Certainly not. They are phenomenal realities, and as such analysable like everything else. It is only their *explanatory* power over phenomena which the analysis takes from them. We know them no more, the moment they are assumed to account for phenomena in time, for that assumption changes their phenomenal character.

They may be useful, and two of them at least, Will and Thought, are in my opinion even indispensable to help us to formulate our ideas, when we tax our mental vision to the utmost, and try to penetrate as far as we can into the unknown regions of the universe. But this is very different from using them as an explanation of its entire mystery. There are greater things beyond them.

For a long time indeed they have served to round off systems of philosophy, to give a smallness and comprehensibility to the universe. But their best and truest admirers would be consoled for their disappearance, if they reflected that what we thus lose in the apparent comprehensibility of the universe, we gain in another direction, namely, in the richness and extent of the phenomenal universe which replaces theirs. They disappear as noumena existing *behind* phenomena, but only to reappear as ideals *in* phenomena beyond our means of direct investigation. Phenomena lose their supposed anchorage on noumena, but only to have it replaced by the perception that the anchorage is phenomenal also. Let neither friend nor enemy imagine that philosophy is the poorer, or its universe less mysterious, for the change. We no longer assume that *man's ideas* are the measure of all things, that the universe can be explained as the result of force, thought, will, or the substance which is their source,—provided only we add that these are noumenal, not phenomenal. We no longer imagine that we can see the universe from outside, or ask how it came to be there; we submit to look at it from within, where nature has placed us, and where the whole, of which we are a part, appears of infinite variety and magnitude and duration.

Any whole which we see only from the inside is an infinite from that point of view. The universe, which is that whole which we can by no possibility see or construe to thought but from the inside, is the infinite *par excellence*. It is a whole because it is continuous, and everything else is a part of it. But this does not imply that it has the property, which other wholes have, of being limited on the outside by something not itself. It is a whole when considered in relation to its parts; it is infinite when considered in relation to perceptive consciousness.

It is to the remoter parts of this infinite universe that we refer those ideals which replace the noumenal anchorage. Whether we rightly conceive those ideals, whether our notions of them have *truth*, may be debatable. But of the *reality* of the ideals, that is, of the existence of *something* which we image by their means, there can be no doubt. Is light a fable because moles are blind? Is the universe finite because *we* are limited? The object of our subjective ideals is real, when we provide in thought for the error, imperfection, and ignorance, which our ideals contain.

The popular notion of reality is excessively misty. It is usually confused with the notion of truth; that is to say, we do not usually call a thing real, unless we imagine that we have got the true notion of it in our heads. The object of that supposed true notion we call the real, as opposed to the apparent thing. But in this way of understanding reality, reality vanishes; the notion is suicidal; of no single thing in the world have we the true notion. Truth itself is an *ideal;* and it is suspending reality upon an ideal when we suspend it upon truth. The popular notion needs much correction.

The point where reality and truth are in contact is the point where consciousness is in immediate contact with its object. And that point is the instant of presentative perception. Real existence becomes actual for consciousness at and for that instant; and such instants are the tests of truth in the notions which we form of real existence. Imagine a cog-wheel biting upon another wheel of indefinitely greater radius. The two wheels are in contact at every point successively, as each revolves. So is consciousness with regard to real existence or nature; always in contact with it at a single point, but for the *other* points in the two circumferences left to its memory and its imagination, until, or rather unless, they can be tested in their turn by actual contact. I say *unless*, because here the illustration breaks down; real existence is not finite, and cannot be adequately pictured by a closed circumference; no point in it ever returns again. Similarities and analogies, not strict identities, are the tests which presentation brings.

Now popular thinking tends, in its misty manner, to regard as non-existent whatever cannot be proved to exist in this or that definite way, whatever we cannot prove to be a true conception as well as an existing thing. Until it is *reduced into possession,* so to speak, existence is regarded as non-existent. And in this way of thinking the popular mind is encouraged by the scientific. For the business of science lies with definite cognitions and definite existences. Those elements of knowledge which are universal and affect all existences alike, and consequently have no *specific* influence on phenomena, are for scientific purposes disregarded, and properly so. But it is otherwise when we come to examine the question between existence and non-existence, and to determine the limits of the former. The possibility of our reducing into possession a particular conception is not the condition of our possessing the knowledge that it exists. For this purpose it is sufficient if we possess an indefinite knowledge of what it is, and of its connexion with other assured parts of our knowledge. It is a *chose in action*, (as lawyers would say), which may be of great value to those whom it concerns.

Of this nature are the ideals under which we picture that real existence which lies beyond the reach of knowledge based on sense-perception alone. Whether it is truly pictured by us or not, it is at any rate a part of the chain of conditions, the same endless chain of causation, of which our visible and material world is a part. It shares its mysterious property of ceaseless change circumscribed by changelessness; since that is common to all objects which perception offers to thought. Room is left within the unchanging infinite for the infinite variety and contingency of natural processes, and among these for the changes wrought by human choice and action, and their unforeseeable issues. Just as it is with the material world in this respect, so it is with the invisible world beyond it; *this* is not a kingdom of necessity, *that* a kingdom of change; but both are parts of the unchanging infinite, both are subject to variety and contingency in their processes of evolution and development. And it is possible that the development and perfecting of human organisms may depend on modes of brain activity, of which a conscious converse with the existence pictured by our ideal world is the only evidence, and for the purpose of effectuating which it is the only guide.

SHADWORTH H. HODGSON.

V.—JOHN STUART MILL (III.).

My acquaintance with Mill dates from 1839, when I was a student at Marischal College, Aberdeen. In the winter of 1838-9, John Robertson, who was then assisting in the Review, paid a short visit to his native city. I had known him when I was a child, but had not seen him for years. He asked me to meet him, and entered into free conversation about his doings in London and about my pursuits and prospects. He gave me both advice and encouragement, and spoke a good deal about Mill whom I had never heard of, although I may have known something of his father. On returning to London, Robertson mentioned my name to Mill. In the summer of 1839, I wrote a criticism of some points in Herschel's *Discourse on Natural Philosophy,* a book that had long fascinated me, as it had done so many others. I thought Herschel occasionally weak in his metaphysics, and directed my criticism to some of those weaknesses. Robertson showed Mill this paper. He spoke favourably of the effort, but remarked to myself some time afterwards that the criticism was too severe, and that the book "always seemed to him to have the characters of a first crude attempt of a clever and instructed man in a province new to him".

In 1840, I took my M.A. Degree, and began to write for periodicals. Mill had just parted with the *London and Westminster:* but through Robertson, I got my first published article admitted into the *Westminster* for September; an exposition of the two scientific novelties—the Electrotype and Daguerreotype. In July, 1841, was published a second article entitled "The Properties of Matter," to which I owed the first notice taken of me by Mr. Grote. Both these articles did me good with Mill. In the same autumn, 1841, Robertson, who was now very much at sea himself, came down to Aberdeen, and made a long stay; during which I had abundant talk with him, my early friend David Masson being also of the party. Robertson occasionally wrote to Mill, and at last incited me to write to him. I scarcely remember anything of the terms of the letter, but I have preserved his reply, dated 21st Sept., 1841. After my first meeting with Robertson, nearly three years previous, I assiduously perused the back numbers of the *London* and *London and Westminster Reviews,* as well as each new number as it appeared, whereby I became thoroughly familiarised with Mill's ideas: and was thus able to exchange ideas with him on his own subjects. I was engaged for the succeeding winter to teach the class of Moral Philosophy in Marischal College, as substitute for the professor; and his letter is chiefly a comment upon this fact. Notwithstanding that he was then intently occupied in finishing his *Logic* for the press, he wrote me several other letters in the course of the winter. In the one immediately following (Oct. 15) he made mention of Comte, in these terms—"Have you ever looked into Comte's *Cours de Philosophie Positive?* He makes some mistakes, but on the whole I think it very nearly the grandest work of this age." From the remaining letters, I can gather that I had written him a good deal upon Whewell's writings, as well as on Herschel, and on his own coming book. Among other things, he sketched out for me a course of reading on Political and Historical Philosophy. He also criticised in detail the strong and weak points of an article published by me in the *Westminster* in Jan. 1842, with the somewhat misleading title—"Toys".

As soon as the Aberdeen winter session was over, in the middle of April, 1842, I went to London, and remained there five months. The day after arriving, I walked down to the India House with Robertson, and realised my dream of meeting Mill in person. I am not likely to forget the impression he made upon me, as he stood by his desk, with his face turned to the door as we entered. His tall slim figure, his youthful face and bald head, fair hair and ruddy complexion, and the twitching of his eyebrow when he spoke, first arrested the attention: then the vivacity of his manner, his thin voice approaching to sharpness, but with nothing shrill or painful about it, his comely features and sweet expression—would have all remained in my memory though I had never seen him again. To complete the picture, I should add his dress which was constant—a black dress-suit with silk necktie. Many years after that he changed his dress-coat for a surtout; but black cloth was his choice to the end.

My opportunities of conversation with him for these five months consisted in going down to the India House twice a week at four o'clock, and walking with him a good part of his way to Kensington Square, where his mother and family lived. I also spent occasional evenings at the house, where I met other friends of his—G. H. Lewes being a frequent visitor. I may be said to have travelled over a good part of his mind that summer: although he did not then give me his full confidence in many things that I came to know afterwards, I had a very full acquaintance with his views on Philosophy and Politics, as well as a complete appreciation of his whole manner of thinking.

His *Logic* was finished and ready for press; he had intended that it should be out in April of that year (1842). He had submitted it the previous winter to Mr. John Murray; who kept it for some time, and then declined it, so that it could not be brought out that season. He then submitted it to J. W. Parker, by whom it was eagerly accepted.[1] I do not remember the date of Parker's acceptance, but the book had not begun to go to press in the summer months; the printing actually took place in the following winter. One of the first results of our conversations was, that he gave me the manuscript to peruse. During my stay I read and discussed with him the whole of it.

The impression made upon me by the work was, as may be supposed, very profound. I knew pretty well the works that could be ranked as its precursors in Inductive Logic, but the difference between it and them was obviously vast. The general impression at first overpowered my critical faculties; and it was some time before I could begin to pick holes. I remember, among the first of my criticisms, remarking on the Chapter on "Things denoted by Names," as not being very intelligible; I had at the same time a difficulty in seeing its place in the scheme, although I did not press this objection. The effect was that he revised the chapter, and introduced the subordinate headings, which very much lightened the burden of its natural abstruseness.

The main defect of the work, however, was in the Experimental Examples. I soon saw, and he felt as much as I did, that these were too few and not unfrequently incorrect. It was on this point that I was able to render the greatest service. Circumstances had made me tolerably familiar with the Experimental Physics, Chemistry and Physiology of that day, and I set to work to gather examples from all available sources. Liebig's books on the application of Chemistry had then just appeared, and contained many new and striking facts and reasonings, which we endeavoured to turn to account: although at the present day some of those inductions of his have lost their repute. An Aberdeen Lecturer on Chemistry, the late Dr. John Shier (Chemist to the Colony of Demerara) went carefully over with me all the chemical examples, and struck out various erroneous statements. I had recently made a study of Faraday's very stiff papers on Electricity, and from these I extracted one generalisation, somewhat modified by myself, and this Mill prized very highly; nevertheless, it was afterwards carped at by Whewell, as going beyond what Faraday would have allowed. One way or other, I gave him a large stock of examples to choose from, as he revised the Third Book for press. The difficulty that was most felt was to get good examples of the *purely Experimental* Methods. He had availed himself of the famous research on Dew adduced by Herschel. There was hardly to be got any other example so good. For one of his later editions, I gave him the example from Brown-Séquard, on the cause of Cadaveric Rigidity, and also used it in my own book. For the Deductive Method, and the allied subjects of Explanation and Empirical and Derivative Laws, the examples that we found were abundant. When, however, I suggested his adopting some from Psychology, he steadily, and I believe wisely, resisted; and; if he took any of these, it was in the Deductive department.

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[1] So great a work can sustain even a little anecdote. Parker, in intimating his willingness to publish the book, sent the opinion of his referee, in the writer's own hand, withholding the name. "He forgot," said Mill, "that I had been an Editor, and knew the handwriting of nearly every literary man of the day." The referee was Dr. W. Cooke Taylor, who afterwards was one of the reviewers of the book.

I was so much struck with the view of Induction that regarded it as reasoning from particulars to particulars, that I suggested a farther exemplification of it in detail, and he inserted two pages of instances that I gave him. On the three last books, I had little to offer. I remember his saying at a later period, that the Fourth Book (which I have always regarded as the crude materials of a Logic of Definition and Classification) was made up of a number of subjects that he did not know where to place.

The *Logic* has been about the best attacked book of the time; and the author has in successive editions replied to objections and made extensive amendments. I have had myself full opportunities for expressing both agreements and dissents in regard to all the main points. Yet I could not pretend to say that criticism has been exhausted, or that imperfections and even inconsistencies may not even yet be pointed out. It is long since I was struck with the seeming incompatibility between the definition of Logic in the Introduction—the Science of Proof or Evidence—and the double designation in the title—Principles of Evidence and the Methods of Scientific Investigation. Previous writers laid little stress on Proof, and Mill took the other extreme and made Proof everything. Bacon, Herschel and Whewell seemed to think that if we could only make discoveries, the proof would be readily forthcoming, a very natural supposition with men educated mainly in mathematics and physics. Mill, from his familiarity with the Moral and Political Sciences, saw that Proof was more important than Discovery. But the title, although larger than the definition, is not larger than the work; he did discuss the methods of Investigation, as aids to Discovery, as well as means of Proof; only, he never explained the mutual bearings of the two. Any one that tries will find this not an easy matter.

The Sixth Book was the outcome of his long study of Politics, both Practical and Theoretical, to which the finishing stroke was given by the help of Auguste Comte. I will return to this presently.

In five months he carried the work through the press, and brought it out in March, 1843. We may form some estimate of the united labour of correcting proof sheets, often one a day, of re-considering the new examples that had been suggested, of reading Liebig's two books, and Comte's sixth volume (nearly a thousand pages), and of re-casting the concluding chapters. From the moment of publication, the omens were auspicious. Parker's trade-sale was beyond his anticipations, and the book was asked for by unexpected persons, and appeared in shop-windows where he never thought to see it. Whately spoke handsomely of it; and desired his bookseller to get an additional copy for him, and expose it in the window.

While the work was printing, I prepared from the sheets a review of it, which came out in the *Westminster* in the April number, and was even more laudatory than Mill liked. The first adverse criticism of importance was an article in the autumn number of the *British Critic*, of nearly a hundred pages, known to have been written by Mr. W. G. Ward, the ally of Newman and Pusey. It was a most remarkable production, and gave Mill very great satisfaction, all things considered. It was not so much a review of the *Logic*, as of Mill altogether. Mr. Ward had followed him through his various articles in the *London and Westminster*, and had mastered his modes of thinking on all the great questions; and the present article takes these up along with the *Logic*. He expresses a warm interest in Mill himself: remarking—"An inquirer, who bears every mark of a single-minded and earnest pursuit of truth, cheers and relieves the spirits"; a pretty strong innuendo as to the prevailing dispositions of so-called inquirers. He deplores Mill's "miserable moral and religious deficiencies," and says if his "principles be adopted as a full statement of the truth, the whole fabric of Christian Theology must totter and fall". Accordingly the article is devoted to counterworking these erroneous tendencies; and the parts chosen for attack are the Experience-foundations of the Mathematical Axioms, the derived view of Conscience, and Necessity as against Free-Will. Mr. Ward has continued to uphold his peculiar tenets against the Experience-school. He had, afterwards, as he informs me, a good deal of correspondence with Mill, and once met him. At his instigation, Mill expunged from his second edition an objectionable anecdote.[1]

Without pursuing farther at present the fortunes of the *Logic*, I will allude to the connexion between Mill and Comte, and to the share that Comte had in shaping Mill's Political Philosophy. Wheatstone always claimed to be the means of introducing Comte in England. He brought over from Paris the two first volumes of the *Philosophie Positive*, after the publication of the second, which was in 1837. It would appear that the first volume, by itself, published in 1830, had fallen dead; notwithstanding that the two first chapters really contained in very clear language, although without expansion, the two great foundations that Comte built upon—the Three Stages and the Hierarchy of the Sciences. Wheatstone mentioned the work to his scientific friends in London, and among others to Brewster, who was then a contributor of scientific articles to the *Edinburgh Review*. Comte's volumes struck him at once as a good topic; and he wrote an article on them in the August number for 1838. Anyone knowing him would have predicted as the strain of his review—an indignant or else contemptuous exposure of the atheism, a fastening on the weak points in his own special subjects, as Optics, and a cold recognition of his systematic comprehensiveness. This, however, was to leave out of the account one element—his antipathy to Whewell; sufficiently marked in a review of the *History of the Inductive Sciences* in the previous year. He found with joy a number of observations on Hypothesis and other points, that he could turn against Whewell, and the effect was, I have no doubt, to soften the adverse criticisms, and to produce an article on the whole favourable to the book, and one that even Comte himself regarded with some complacency. Mill got wind of the two volumes in the end of 1837, after he had completed the draft of his Book on Induction. The *Autobiography* gives (pp. 210-14) the general effect produced upon him by the whole work, which he perused with avidity as the successive volumes appeared; but does not adequately express the influence in detail, nor the warmth of esteem and affection displayed in the five years of their correspondence from 1841 to 1846. In our many conversations during the summer of 1842, Mill occasionally mentioned Comte, but not in a way to give me any clear conception of what his merits consisted in. Among his associates at that time was William Smith, lately dead, and known as the author of *Thorndale* and various other works. He was a pupil of the Mills in Philosophy, and occupied himself in contributing to magazines. In the winter of that year, he wrote a review of Comte in *Blackwood* (March, 1843), giving very well selected extracts; and from these I

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[1] In regard to the *British Critic*, he wrote, "I always hailed Puseyism,

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and predicted that Thought would sympathise with Thought—though I did not expect to find my own case so striking an example". I was told that he had written several letters in the *Morning Chronicle* in this strain of subtle remark.

derived my first impression of the peculiar force of the book. I remember particularly being struck with the observations on the metaphysical and critical stage, as a vein of remark quite original.

It was in the summer of that year, 1843, that I read the work for myself. I was in London as before, and had the same opportunities of conversing with Mill. We discussed the work chapter by chapter, up to the last volume, which I had not begun when I left town. We were very much at one both as to the merits and as to the defects of the work. The errors were mostly of a kind that could be remedied by ordinary men better informed on special points than Comte; while the systematic array was untouched. The improvement effected in the Classification of the Sciences was apparent at a glance; while the carrying out of the Hierarchy, involving the double dependence of each science upon the preceding, first as to Doctrine and next as to Method, raised the scheme above the usual barrenness of science-classifications. Mill had already seized with alacrity, and embodied in the *Logic*, Comte's great distinction between Social Statics and Social Dynamics; and I was even more strongly impressed than he respecting the value of that distinction, as an instrument of social analysis. Comte, according to his plan of pushing forward the ideas of each of the fundamental sciences into the succeeding, had taken up the distinction in Abstract Mechanics, and carried it first into Biology, where it made his contrast between Anatomy and Physiology—Structure and Function. The next step was to Sociology, and led to the distinction of Order and Progress. I confess that I never thought the three cases exactly parallel; still, however the distinction came, it was invaluable in Sociology; and Comte's separation of the two interests—Social Order and Social Progress—was a grand simplification of the subject, and a mighty advance upon the Historical and Political Philosophy of his predecessors and contemporaries. The Social Statics he discussed briefly, as compared with the magnitude of the topics, but indicated well enough what these topics were; the Social Dynamics enabled him to give free scope to his doctrine of the Three Stages, and carry this out in a grand survey of the historical development of mankind. Here, of course, he exposed a wide front to criticism; but, while numerous exceptions might be taken to his interpretations of history, it was truly wonderful to see how many facts seemed to fall in happily under his formulas. Mill, it will be seen from the *Logic* (Book VI., chap. x.) accepted the Three Stages as an essential part of Comte's Historical Method, which method he also adopts and expounds as the completion of the Logic of Sociology. In our very first conversations, I remember how much he regretted Comte's misappreciation of Protestantism;

and he strove in the early part of their correspondence to make him see this. He also endeavoured to put him right on the speciality of England in the political evolution.

It is curious to observe that his altered estimate of Comte never extended to the views appropriated from him on the method of Social Science. The modifications in the later editions consisted mainly in leaving out the high-pitched compliments to Comte in the first; none of the quotations are interfered with. I give a few examples of these omissions. Referring to the latest edition, the eighth, on p. 490, he writes, "The only thinker who, with a competent knowledge of scientific methods in general"; in the first edition—"The greatest living authority on scientific methods in general". On p. 506, l. 5 from bottom, before "To prove (in short)," the first edition has—"It is therefore well said of M. Comte". In p. 512, l. 13 from top, the words "but deem them," are followed in 1st ed. by "with the single exception of M. Comte". In p. 513, l. 9 from top, after "up to the present time," a long sentence of reference to Comte is left out. In p. 530, l. 14 from top, after "attempted to characterise," there is omitted the clause—"but which hitherto are to my knowledge exemplified nowhere but in the writings of M. Comte".

The distinction of Statics and Dynamics was carried by Mill into the plan of his *Political Economy.* It also entered into his *Representative Government;* and if he had written a complete work on Sociology, he would have made it the basis of his arrangement as Comte did.

Mill's correspondence with Comte began in 1841. I heard from himself a good deal of the substance of it as it went on. Comte's part being now published, we can judge of the character of the whole, and infer much of Mill's part in the work. In 1842 and 1843, the letters on both sides were overflowing with mutual regard. It was Comte's nature to be very frank, and he was circumstantial and minute in his accounts of himself and his ways. Mill was unusually open: and revealed, what he seldom told to anybody, all the fluctuations in his bodily and mental condition. In one of the early letters, he coined the word "pedantocracy," which Comte caught up, and threw about him right and left ever after. Already in 1842 troubles were brewing for him in Paris, partly in consequence of his peculiar tenets, and still more from his unsparing abuse of the notables of Paris, the foremost object of his hate being the all-powerful Arago. His personal situation, always detailed with the utmost fulness, makes a considerable fraction of the correspondence on his side. When in 1843, the "Polytechnic pedantocracy," that is to say, the Council of the Polytechnic School, for which he was

Examiner, first assumed a hostile attitude, and when his post was in danger, Mill came forward with an offer of pecuniary assistance, in case of the worst; the generosity of this offer will be appreciated when I come to state what his own circumstances were at that moment. Comte, however, declined the proposal; he would accept assistance from men of wealth among his followers; indeed, he broadly announced that it was their duty to minister to his wants; but he did not think that philosophers should have to devote their own small means to helping one another. Mill sent the *Logic* to him as soon as published; he is overjoyed at the compliments to himself, and warmly appreciates Mill's moral courage in owning his admiration. They discuss sociological questions at large, at first with considerable cordiality and unanimity; but the harmony is short-lived. In summer, 1843, begins the debate on Women, which occupied the remainder of that year; the letters being very long on both sides. By November, Comte declares the prolongation of the discussion needless; but protests strongly against Mill's calling women "slaves". Mill copied out the letters on both sides, and I remember reading them. Some years later, when I asked him to show them to a friend of mine, he consented, but said that, having re-read them himself, he was dissatisfied with the concessions he had made to Comte, and would never show them to anyone again. What I remember thinking at the time I read them was, that Mill needlessly prolonged the debate, hoping against hope to produce an impression upon Comte. The correspondence was not arrested by this divergence, nor was Mill's sympathy for Comte's misfortunes in any way abated, but the chance of their ever pulling together on social questions was reduced to a very small amount. They still agreed as to the separation of the Spiritual and the Temporal power, but only as a vague generality. In July, 1844, came the crash at the Polytechnic; by a dexterous manœuvre, Comte was ousted without being formally dismissed; he lost 6000 francs a-year, and was in dire distress. He appealed to Mill, but with the same reservation as before; Mill exerted himself with Grote and Molesworth, who with Raikes Currie agreed to make up the deficiency for the year. Another election came round, and he was not reinstated; and was again dependent on the assistance of his English friends. They made up a portion of his second year's deficiency, but declined to continue the grant. He is vexed and chagrined beyond measure, and administers to Mill a long lecture upon the relations of rich men to philosophers; but his complaint is most dignified in its tone. This puts Mill into a very trying position; he has to justify the conduct of Grote and Molesworth, who might with so little inconvenience to themselves have tided him over another year. The delicate part of the situation was that Grote, who began admiring Comte, as Mill did, although never to the same degree, was yet strongly adverse to his sociological theories, especially as regarded their tendency to introduce a new despotism over the individual. Indeed, his admiration of Comte scarcely extended at all to the sociological volumes. He saw in them frequent mistakes and perversions of historical facts, and did not put the same stress as Mill did upon the Social analysis—the distinction of Statics and Dynamics, and Historical Method; in fact, he had considerable misgivings throughout as to all the grand theories of the French school in the Philosophy of History. But the repression of liberty by a new machinery touched his acutest susceptibility; he often recurred in conversation to this part of Comte's system, and would not take any comfort from the suggestion I often made to him that there was little danger of any such system ever being in force. It was the explanation of this divergence that Mill had to convey to Comte; who, on the other hand, attempted in vain to reargue the point by calling to mind how much he and Mill were agreed upon, which, however, did not meet Grote's case. He returned to the theme in successive letters, and urged upon Mill that there was an exaggeration of secondary differences, and so on. What may be said in his favour is that Grote turned round upon him rather too soon. This was in 1846. The same year his Clotilde died. He still unfolded his griefs to Mill, and, as may be supposed, received a tender and sympathising response. The correspondence here ends.[1]

I must still come back to the year 1842. In the October number of the *Westminster Review* for that year, was published his article on Bailey's Theory of Vision, in which he upheld the Berkeleyan doctrine against Bailey's attacks. I remember his saying that he went to the country, on one occasion, from Friday till Tuesday, and in the three days wrote this article. With all his respect for Bailey, he used a number of expressions very derogatory to his understanding; attributing to him such things as a "triumphing over a shadow," "misconceiving the argument he is replying to," and so forth. Bailey was much hurt at the time by these expressions; and Mill's reply on this point is very characteristic (*Dissertations*, II. 119):—"To dispute the soundness of a man's doctrines and the conclusiveness of his arguments, may always be interpreted as an assumption of superiority over him; true courtesy, however, between thinkers, is not shown by refraining from this sort of assumption, but by tolerating it in one another; and we claim from Mr. Bailey this tolerance, as we, on our part, sincerely and cheerfully concede to him the like." This was his principle of composition throughout his polemical career, and he never departed from it. Of Bailey's reply on this occasion, he remarked—"The tone of it is peevish. But Bailey is, I know, of that temper—or rather I infer it from sundry indications."

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[1] Although Mill was the first and principal medium of making Comte and his doctrines familiar to the public, he was soon followed by George Henry Lewes who was beginning his literary career, as a writer in Reviews, about the year 1841. I met Lewes frequently when I was first in London in 1842. He sat at the feet of Mill, read the *Logic* with avidity, and took up Comte with equal avidity. These two works, I believe, gave him his start in philosophy; for although he had studied in Germany for some time, I am not aware that he was much impressed by German Philosophy. In an article, in the *British and Foreign Review*, in 1843, on the Modern Philosophy of France, he led up to Comte, and gave some account of him.

The same year was memorable for the American Repudiation, in which Mill was heavily involved. He had invested, I am told, a thousand pounds of his own money, and several thousands of his father's money which he had in trust for the family, and which he would have to make good. The blow completely shook him for the time. From whatever cause, or union of causes, his bodily strength was prostrated to such a degree that, before I left London that autumn, he was unequal to his usual walk from the India House home, and took the omnibus before he went far. The disaster must have preyed upon him for a year or more. He alludes to his state in the Comte letters, in which he described his depression as both physical and moral. It appears that in a letter to Comte of the 15th Nov., he gave assurances of his being much better. So in writing to me on the 3rd Oct., he says, "I am quite well and strong and now walk the whole way to and from Kensington without the self-indulgence of omni*bi*". But on the 5th Dec. he says, "I have not been very well but am a little better". He was now in the middle of the very heavy winter's work of getting the *Logic* through the press. There is no more heard of his health till the following June, in which he wrote to Comte in a very depressed tone. I remember, either in that or in the previous summer, his confessing to me that he was in a low state. I naturally urged that he had a long continuance of very heavy work. He replied hastily, "I do not believe any man was ever the worse of work," or something to that effect. I listened in mute astonishment; being quite ignorant that other circumstances besides his intellectual strain were at work. In writing to Comte who, unlike him, believed in the bad consequences of prolonged study, he said his doctors advised him to rest his brain, but, as they knew so very little, he preferred to abide by his own feelings, which taught him that work was the only thing to counteract melancholy. Comte, however, urged that a "true *positive* therapeutics" involved rest and diversion; and Mill believed in regular holiday tours. It was during this dreadful depression of June and July, 1843, and after the American Repudiation had beggared him, that he made his offer of pecuniary assistance to Comte. He had had no holiday for two years, and, except for his customary Sunday walks, he did not leave town that autumn: I suspect that his money affairs had something to do with his still postponing his holiday. In October, his letters announce an improved state of health.

His work in 1843, after the publication of the *Logic*, was his "Michelet" article, written in autumn. In September, he writes, "I am now vigorously at work reviewing Michelet's *History of France* for the *Edinburgh*. I hope to *do* Napier, and get him to insert it before he finds out what a fatal thing he is doing." On 3rd Nov., he says, "My review of Michelet is in Napier's hands. If he prints it, he will make some of his readers stare." The article appeared in January, and had none of the serious consequences predicted. We have a difficulty, reading it now, to see anything very dreadful in its views. But a philosophic vindication of the Papacy and the celibacy of the clergy, as essential preservatives against barbarism, was not then familiar to the English mind. Mill had worked himself into sympathy with everything French, and echoed the importance of France from the French historians. He always dealt gently with her faults, and liberally with her virtues.

While writing this article, he was projecting in his mind his next book, which was to be on the new science, first sketched in the *Logic*, to be called 'Ethology'. With parental fondness, he cherished this subject for a considerable time; regarding it as the foundation and cornerstone of Sociology. "There is no chance, he says, for Social Statics at least, until the laws of human character are better treated." A few months later he wrote—"I do not know when I shall be ripe for beginning 'Ethology'. The scheme has not assumed any definite shape with me yet." In fact, it never came to anything; and he seems shortly to have dropped thinking of it. I do not believe there was anything to be got in the direction that he was looking. He was all his life possessed of the idea that differences of character, individual and national, were due to accidents and circumstances that might possibly be, in part, controlled; on this doctrine rested his chief hope in the future. He would not allow that human beings at birth are so very different as they afterwards turn out.

His failure with 'Ethology' fatally interfered with the larger project, which I have no doubt he entertained, of executing a work on Sociology as a whole. The opinion was long afloat in London that he had such a work in view; but I do not think he ever said so; it was not his way to give out what he was engaged upon, at least before making himself sure of going through with it. That he despaired, for the present at least, of making anything out of Ethology at the time I refer to, is proved by his betaking himself soon after to the composition of his *Political Economy.*

I have now disposed of all my memoranda relating to 1842 and 1843. The beginning of 1844 saw the publication of the article on Michelet, to which I have adverted. In a letter dated 8th Jan., I find this upon Beneke:—"I am reading a German professor's book on Logic—Beneke is his name—which he has sent to me after reading mine, and which had previously been recommended to me by Austin and by Herschel as in accordance with the spirit of my doctrines. It is so in some degree, though far more psychological than entered into my plans. Though I think much of his psychology unsound for want of his having properly grasped the principle of association (he comes very close to it now and then), there is much of it of a suggestive kind."

From the Comte letters it appears that he had another relapse of his indisposition at this time. Comte earnestly urges him to try a change of climate—Naples or Lisbon—to fortify him for the next few years against "le séjour *spleenique* de Londres". "What is the opinion, I do not say of your doctors, whom you have little faith in, but of those of your friends who are *biologists?*"

I passed three months in London in the summer of 1844, and saw him frequently as before. I have no special recollections of his work this summer. In the autumn he took his long-deferred holiday, and was absent from London two months. He came back quite recruited, and in the course of the winter wrote his admirable article on "The Claims of Labour," which appeared in the *Edinburgh* in the following spring.

I had several letters from him in the winter of 1844-5, but they say little about himself. He remarks of the review of his *Logic* in the *Eclectic Review*, that the reviewer differs from him on the Syllogism which he understands, and agrees with him on the rest of the book without seeming to understand it. He announces with satisfaction, as a most important conquest for Comte, the appearance of Littré's papers in the *National* newspaper. This, however, was immediately followed by his renewed and final exclusion from the Polytechnic Examinership; for which one resource was suggested—to start a Positive Review, a scheme that bulks largely in the correspondence for some months, and receives from Mill a qualified support. In March, 1845, he writes to me, "Have you seen Ward's book, *The Ideal &c.?* It is a remarkable book in every way, and not the least so because it quotes and puffs me in every chapter, and Comte occasionally, though with deep lamentations over our irreligion." The Comte correspondence shows that he had written to Comte informing him of Mr. Ward's allusions. Comte is very much flattered, and thinks the compliments deserved, because of the justice he had rendered to Catholicism (p. 323).

The summer of 1845 was marked by an interesting incident. In June, the British Association met at Cambridge, Sir John Herschel in the chair. I was at the meeting, and listened to Herschel's address. One notable feature in it was the allusion to the recent works on the Logic of Science, by Whewell and Mill especially, on both of whom Sir John bestowed high encomiums. He also mentioned Comte, but in a very different strain. There was, I remember, a good deal of buzz among Mill's friends that were present, at this unexpected mention of him. Mill was of course extremely gratified on his own account, but considered that Comte was very unfairly handled. Herschel brought up the nebular hypothesis, as advocated by Comte, but treated Comte's mathematics with contempt, and spoke of his book as "a philosophical work of much mathematical pretension, which has lately come into a good deal of notice in this country". To dismiss Comte in this summary fashion, even supposing he had laid himself open by his supposed mathematical proofs of the hypothesis, was a little too strong. Mill naturally thought it an evidence of some weakness in Herschel's mind that he should be so blind to the abundant manifestations of intellectual force in the *Philosophie Positive*.[1] He wrote to Herschel, thanking him for the mention of himself, and remonstrating on his treatment of Comte; but went a little out of his depth in attempting to uphold Comte's calculation. Herschel, in replying, reiterated his approval of the *Logic*, stating that it was his intention to have reviewed it in the *Quarterly*, as he had done Whewell; but as regarded Comte, he was obdurate, and demolished at a stroke the proof that Mill had relied upon. I think Mill wrote a rejoinder. It is to be hoped that these letters are preserved. Mill copied them and sent them to Comte. It was not the first time that Herschel's name had come up between them; he must have previously written to Mill in acknowledgment of the *Logic*. In Comte's letter of date 21st October, 1844, (p. 276) he refers to the information given him by Mill, that Herschel meant to read "mon grand ouvrage," but does not count upon its making a favourable impression, "du moins intense". He then gives the reasons: one being H.'s prepossessions in favour of sidereal astronomy; the other his analogy to Arago, although "without the charlatanism and immorality of that disastrous personage". Such was the previous reference. The result of his seeing the present correspondence appears on p. 362. Comte is very much touched with the zeal displayed by Mill on his behalf; but declines Mill's suggestion that he should himself take up the cudgels in his own defence. Mill, he says, had sufficiently proved, although in a polite way, the malevolent spirit and even the bad faith of Herschel. He is, however, quite satisfied with his former explanation of Herschel's motives, namely, the soreness caused by his discarding sidereal astronomy, on which Herschel's father and himself rested their chief fame.

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[1] The following sentence in Mill's review of "Comte and Positivism" does not apply to the scientific magnates of England, at the date of Herschel's Address :—"He (Comte) has displayed a quantity and quality of mental power, and achieved an amount of success, which have not only won but retained the high admiration of thinkers as radically and strenuously opposed as it is possible to be, to nearly the whole of his later tendencies, and to many of his earlier opinions".

In the summer of 1845, I became personally acquainted with Grote. For several years previously, Mill appears to have seen little of him, but they had now resumed their footing of intimacy. Grote was living chiefly in the country, but when he came into town, he made a point of arranging walks and talks with Mill. From the time of my introduction to Grote, I was usually asked to join them. I remember well our first meeting at the London Library, and subsequent walk in Hyde Park. Their conversation took an exceptional turn; how it came I cannot exactly remember, but they went over all the leaders of the Reformation, discussing their several characteristics. The subject was not one that either was specially informed upon. As Grote was then on the eve of bringing out the first two volumes of his *History*, this was a natural topic; much more so, after the volumes were out. But Grote was never satisfied if we parted without coming across some question in metaphysics or philosophy. Although his time was mainly given to the *History*, he always refreshed his mind at intervals with some philosophic reading or meditation, and had generally a nut to crack when we came together. Plato and Aristotle were never long out of his hands; he was also an assiduous reader of all works on science, especially if they involved the method of science; but the book that was now oftenest in his hands in the intervals of work, was Mill's *Logic*. I doubt if any living man conned and thumbed the book as he did. "John Mill's *Logic*," I remember his saying, "is the best book in my library"; he had not the same high opinion of any of Mill's other books. He was himself one of nature's logicians; he was a thorough-going upholder of the Experience-philosophy, and Mill's *Logic* completely satisfied him on this head. Often and often did he recur to the arguments in favour of *à priori* truth, and he was usually full of fresh and ingenious turns of reply. It was only in Mill that he could find a talker to his mind in this region, as in philosophy generally. Equally intense was his devotion to Utility as the basis of Morals, and still more varied was his elucidation and defence of the principle; on that topic also he had few that he could declare his whole mind to, and this was another bond of attraction to Mill. Towards himself, on the other side, Mill had an almost filial affection, and generally gave him the earliest intimation of his own plans; but much as he loved Grote's company, his movements were under the control of a still greater power. Notwithstanding their wide agreement and numerous bonds of sympathy from this cause as well as from long intimacy, Grote had always a certain misgiving as to his persistence in the true faith. He would say to me, "Much as I admire John Mill, my admiration is always mixed with fear," meaning that he never knew what unexpected turn Mill might take. This I regarded as an exaggeration due to Grote's gloomy temperament, as well as to the shock of the "Bentham" and "Coleridge" articles; and to Mill's consequent making himself at home with Maurice, Sterling, and Carlyle, with whom Grote never could have the smallest sympathy.

The first opinion held by both that I found occasion to controvert, in those early conversations, was the Helvetius doctrine of the natural equality of human beings in regard of capacity. I believe I induced Grote at last to relax very considerably on the point; but Mill never accommodated his views, as I thought, to the facts. With all his wide knowledge of the human constitution and of human beings, this region of observation must have been to him an utter blank.

This summer (1845) produced the article on Guizot, the last of his series on the French Historians (apart from Comte). It seems to have been a great success, even in the point of view of the old *Edinburgh Review* connexion, to which it was often an effort to accommodate himself. Jeffrey *(Napier Correspondence,* p. 492) is unusually elated with it; "a very remarkable paper," "passages worthy of Macaulay," "the traces of a vigorous and discursive intellect". He did not then know the author: when made aware of the fact, he adds, "Though I have long thought highly of his powers as a reasoner, I scarcely gave him credit for such large and sound views of *realities* and practical results". The reader will remember that the most prominent topic is the Feudal System.

We are now at the commencement of the *Political Economy*, which dates from the autumn of this year. The failure of the 'Ethology' as a portal to a complete Sociology left the way clear for this other project, at a time when he had still energy for great things. Indoctrinated as he was from babyhood in the subject, and having written articles on it and discussed it, both in private and in the Political Economy Club, with all the experts of the time, it seemed to offer a fine field for his expository powers. Add to which, he found he could attach to it his views as to the great social questions; although, it must be allowed, the bond of connexion was somewhat loose, and the larger Sociology would have been a more fitting occasion for such wide-reaching topics.

In a letter dated Feb., 1846, he announces that the third part of the *Political Economy* is written. He says, in the *Autobiography*, that it was the most rapidly written of any of his books; which showed that the subject had been well matured. He turned aside to write an article for the *Edinburgh* on French politics, the text being a series of political papers by Charles Duveyrier. Louis Philippe was now at the height of his prosperity; but the political system was very unsatisfactory: and Mill returned for a little to his old interest in France, and discussed in his usual style the workings of the constitutional system, its weakness and its remedies. His author—a calm, clear-sighted reasoner—put much stress upon a second chamber made up of old officials, and Mill sympathises with his object in desiring a counterpoise to democracy; but remarks, with his usual acuteness, "It is not the uncontrolled ascendancy of popular power, but of any power, which is formidable". The article came out in April, 1846. It appears that the Editor thought fit to omit a passage controverting the prevailing notion of the warlike propensity of the French. Mill wished the passage had been retained: "The opinion is a very old and firm one with me, founded on a good deal of personal observation". He adds, "the *Edinburgh* has lately been sometimes very unjust to the French". He further interrupted the *Political Economy* to write his review of Grote's first two volumes, which appeared in the *Edinburgh* in October. This was, in every sense, a labour of love; love of the subject, love of the author, and admiration of the work. Writing in September, he says, "I have just corrected the proof of my review of Grote, in which I have introduced no little of the Comtean philosophy of religion. Altogether I like the thing, though I wrote it in exactly four days, and re-wrote it in three more, but I had to read and think a good deal for it first." His reading, I remember, included the whole of the Iliad and Odyssey, for the sake of the Homeric discussion, in which he perilously ventured to differ somewhat from Grote. There was no man whose opinion Grote was more sensitive to, but the objections raised did not alter his views. In deference to Mill, he made some slight changes in the next edition. One, I remember, was to leave out of the preface the words "feminine" and "masculine," as a figurative expression of the contrast of the artistic and scientific sides of the Greek mind. Mill could never endure the differences of character between men and women to be treated as a matter of course.

In the letter above quoted, he announces that he has "got on well with the *Pol. Ec.* I am on the point of finishing the third book (Exchange)." He was now beginning his hardest winter after 1842-3. It was the winter of the Irish famine, and he thought he saw an opportunity for a grand regenerating operation in Ireland. He began in the *Morning Chronicle* a series of leading articles, urging the reclamation of the waste lands to be converted into peasant properties, and iterated all the facts showing the potency of the proprietary feeling in strengthening the dispositions to industry. In the months of October, November, December, and January, he wrote two or three leaders a-week on this topic; we used to call these, in the language of the medical schools, his "Clinical Lectures". He was pushing on the *Political Economy* at the same time. Moreover, a letter to his brother James (2nd Nov.), shows that he was labouring under illness: "had been ill, now better, but still a bad cold". In the middle of November, he wrote that the articles "have excited a good deal of notice, and have quite snatched the initiative out of the *Times*". He adds—"It is a capital thing to have the power of writing leaders in the *Chronicle* whenever I like, which I can always do. The paper has tried for years to get me to write to it, but it has not suited me to do it before, except once in six months or so." On the 28th December, he says—"I continue to carry on the *Pol. Econ.* as well as I can with the articles in the *Chronicle*. These last I may a little slacken now, having in a great measure, as far as may be judged by appearances, carried my point, *viz.*, to have the waste lands reclaimed and parcelled out in small properties among the best part of the peasantry." In another month he changes his tune. On 27th Jan. (1847), he writes:—"You will have seen by this time how far the ministry are from having adopted any of my conclusions about Ireland, though Lord J. Russell subscribes openly to almost all the premises. I have little hope left. The tendency of their measures seems to me such that it can only bring about good to Ireland by excess of evil." "I have so indoctrinated the *Chronicle* writers with my ideas on Ireland that they are now going on very well and spiritedly without me, which enables me to work much at the *Political Economy*, to my own satisfaction. The last thing I did for the *Chronicle* was a thorough refutation, in three long articles, of Croker's article on the Division of Property in France." Two months later, he announced that the first draft of the *Political Economy* was finished. As to public affairs—"The people are all mad, and nothing will bring them to their senses but the terrible consequences they are certain to bring on themselves, as shown in Whately's speech yesterday in the House of Lords—the only sensible speech yet made in either House on the question. Fontenelle said that mankind must pass through all forms of error before arriving at truth. The form of error we are now possessed by is that of making *all* take care of *each*, instead of stimulating and helping each to take care of himself; and now this is going to be put to a terrible trial, which will bring it to a crisis and a termination sooner than could otherwise have been hoped for."

Before passing from this memorable winter, I may mention that Liebig, in a reprint of his *Animal Chemistry*, handsomely repaid the notice taken of his researches in the *Logic*: saying of his amended views that "he feels that he can claim no other merit than that of having applied to some special cases, and carried out further than had previously been done, those principles of research in natural science which have been laid down" in Mill's book. Mill exultingly remarked—"The tree may be known by its fruits. Schelling and Hegel have done nothing of the kind."

Before arriving in London this year, I had another letter (5th May). He delays to commence rewriting till he sees the upshot of the Irish business. "The conduct of the ministers is wretched beyond measure upon all subjects; nothing but the meanest truckling at a time when a man with a decided opinion could carry almost anything triumphantly." I saw him as usual during the summer, but do not remember any incidents of importance. Grote was in town for several weeks on the publication of his third and fourth volumes, which was a new excitement. I went down to Scotland in autumn, but having no longer any teaching-appointment there I returned to London in November, and entered the Government service, and was therefore in constant residence until I saw fit to resign in 1850. For this interval, I have not the advantage of possessing any letters from Mill, and can only give a few scattered recollections of the more impressive occurrences.

The *Political Economy* was published in the beginning of 1848. I am not about to criticise the work, as I mean to do the subsequent writings, but I have a few remarks to make upon it. One modification in the laying out of the subject he owes, as I have already said, to Comte's sociological distinction into Statics and Dynamics. This is shown in the commencement of the Fifth Book, entitled, "The Influence of the Progress of Society in Production and Distribution". I can believe, although I am not a political economist, that this distinction may have been as useful in Political Economy as in Politics. He spoke of it to me at the time as a great improvement.

But what I remember most vividly of his talk pending the publication of the work, was his expectation of a tremendous outcry about his doctrines on Property. He frequently spoke of his proposals as to Inheritance and Bequest, which, if carried out, would pull down all large fortunes in two generations. To his surprise, however, this part of the book made no sensation at all. I cannot now undertake to assign the reason. Probably people thought it the dream of a future too distant to affect the living; or else that the views were too wild and revolutionary to be entertained. One thing strikes me in the chapter on Property. In § 3, he appears to intimate that the children even of the wealthy should be thrown upon their own exertions for the difference between a bare individual maintenance and what would be requisite to support a family; while in the next section, he contemplates "a great multiplication of families in *easy circumstances*, with the advantage of *leisure*, and all the real enjoyments which wealth can give, except those of vanity". The first case would be met by from two to five hundred a year; the second supposes from one to two thousand. The whole speculation seems to me inadequately worked out. The question of the existence of large fortunes is necessarily a very complex one; and I should like that he had examined it fully, which I do not think he ever did.

His views of the elevation of the Working Classes on Malthusian principles have been much more widely canvassed. But there is still a veil of ambiguity over his meaning. Malthus himself, and some of his followers, such as Thomas Chalmers, regarded late marriages as the proper means of restricting numbers; an extension to the lower classes of the same prudence that maintains the position of the upper and middle classes. Mill prescribes a further pitch of self-denial, the continence of married couples. At least, such is the more obvious interpretation to be put upon his language. It was the opinion of many, that while his estimate of pure sentimental affection was more than enough, his estimate of the sexual passion fell a good deal below the truth.

The strong leanings towards some form of Socialism, indicated in the *Autobiography*, would have led us to believe that his opinions nearly coincided with those of the Socialists commonly so called. The recent publication of his first draft of a projected essay on the subject shows the wide gulf that still separated him and them. The obstacles to the realising of socialistic schemes could not be more forcibly expressed. Above all, the great stress that he always put upon Individuality would be almost impossible to reconcile with the constructions of Fourier, Owen, Louis Blanc, and the American communities. His socialism is thus to be the outcome of a remote future, when human beings shall have made a great stride in moral education or, as Mr. Spencer would express it, have evolved a new and advanced phase of altruism.

The publication of the *Political Economy* was followed by another very serious breakdown in his health. In the summer of 1848, an affection of the thigh (I am not sure whether it began in a hurt) was treated by his doctor with iodine; the consequence of which was a speedy impairment of his eye-sight. I remember him in a state of despair from the double misery of lameness and blindness. His elasticity of constitution brought him through once more; but in the following year, 1849, he was still in an invalid condition. I introduced to him that year Dr. Thomas Clark, of Marischal College, himself a permanent invalid from overwork, who spoke a good deal to him about regimen, and endeavoured to induce him to try the water-treatment, then just started. He was, however, not to be moved from his accustomed routine. His view of the medical art (at the time I speak of) was, that it should restore a shattered frame by something like magic. In other respects, his intercourse with Clark gratified him much, and led to a permanent friendship.

His work, as a great originator, in my opinion, was now done. The two books now before the world were the great constructions that his accumulated stores had prepared him for; and I do not think that there lay in him the materials of a third at all approaching to these. It is very unlikely indeed that he was even physically capable of renewing the strain of the two winters—1842-3 and 1846-7. His subsequent years were marked by diminished labours on the whole; while the direction of these labours was towards application, exposition and polemic rather than origination; and he was more and more absorbed in the outlook for social improvements. Not that his later writings are deficient in stamina or in value; as sources of public instruction and practical guidance in the greatest interests of society, they will long hold their place. But it was not within the compass of his energies to repeat the impression made by him in 1843 and again in 1848. We must remember that all through his severest struggles, he had a public official duty, and spent six hours every day in the air of Leadenhall street; and although he always affected to make light of this, or even to treat the office work as a refreshing change from study, yet when his constitution was once broken, it would tell upon him more than his peculiar theories of health and work would let him confess.

In another article, I propose to review the writings subsequent to the date now reached.

A. Bain.

VI.—NOTES AND DISCUSSIONS.

NOMINALISM.

It has been very much the fashion, in recent times, to ridicule the achievements of the Schoolmen. Two or three old stories, such as Molière's jest about the dormitive power of opium, or the discussion concerning the number of angels that could dance upon the point of a needle, seem to constitute the chief information possessed by many modern writers about the activity of several very great minds. It is true that the subjects of the disputes of the Middle Ages have lost their interest for us. Few persons would now inquire whether or no a mouse that had eaten of the consecrated wafer was thereby a participant in the real body and blood of Christ; but a little reflection shows that concealed under this ridiculous mask there lie great and still open questions of philosophy. The methods formerly in vogue did not solve these problems; but they have not been solved by modern philosophers, or if they have, such solutions have not gained general acceptance. Yet the attitude of those that maintain the futility of the discussion, because discussion has hitherto been fruitless, can satisfy only themselves; and even they, as was the case with Mr. Lewes, are liable to backslide. Man is impelled, by an irresistible curiosity, to pry into certain themes; and this desire, like all others of our nature, indicates a true want.

The intolerant spirit of former days has so nearly expired that many of the questions that once bred persecution may now be approached with perfect safety. Believers and sceptics now dispute with mutual expressions of respect, instead of hatred, and display all the politeness of civilised warfare. There is to be observed an earnest desire on the part of the disputants to understand the position of their adversaries and to do it justice. The end of disputation is generally admitted to be the truth, and the consequences to particular dogmas are disregarded. Since the volcanic fires are thus subdued, we may venture to descend into the crater for scientific purposes, or even, like the peasants about Mount Vesuvius, to reclaim for our use the soil that has been fertilised by its fiery treatment.

Certainly much ground has been secured in Psychology since the time of Locke. The Association-school has very nearly perfected its system, and its opponents have yielded a great deal. But when certain limits are approached, there appears to be a great gulf fixed between the contending parties. The doctrine of the Nominalists, such as Hume and Mr. Bain, seems to me to leave unanswered one or two questions. These questions admit of brief answer, if they admit of answer at all. If it be found that no answer can be given to them, then the opponents of Nominalism win their case, or at any rate a *modus vivendi* may be established. If these questions are really unanswerable, then something will have been gained by both sides in the proper labelling of certain subjects. These subjects, it may be added, although not all comprehended under the title 'Nominalism,' are yet so closely allied that the settlement of one involves the settlement of all.

In order to clear the ground, it will be necessary to reopen a discussion that many persons suppose to have been closed by Mill. That philosopher remarks :—"Resemblance, when it exists in the highest degree of all, amounting to undistinguishableness, is often called identity, and the two similar things are said to be the same. . . . We constantly use this mode of expression when speaking of feelings ; as when I say that the sight of any object gives me the *same* sensation or emotion to-day that it did yesterday, or the *same* which it gives to some other person. This is evidently an incorrect application of the word *same ;* for the feeling which I had yesterday is gone, never to return ; what I have to-day is another feeling, exactly like the former, perhaps, but distinct from it ; and it is evident that two different persons cannot be experiencing the same feeling in the sense in which we say that they are both sitting at the same table." Mill also quotes Whately approvingly, a part of the passage being as follows :—"Sameness, in the primary sense, does not even necessarily imply similarity ; for if we say of any man, that he is greatly altered since such a time, we understand, and, indeed, imply by the very expression, that he is *one person,* though different in several qualities". (*Logic*, Bk. I. iv. 11 ; V. vii. 1.)

We have here Mill's opinion as to the incorrect use of the word *same.* He gives us no information as to the correct use, and for a very simple reason :— on his terms, it is impossible to use the word at all, except as a synonym for *one.* If resemblance amounts to undistinguishableness and is yet not identity, pray, what is identity ? Mill has neglected to point out the true criterion, although he praises the Aristotelian logicians for their distinction between sameness *numero* and sameness *specie.* In point of fact there is nothing the same *numero* (except substances), at least from the idealist's point of view. We may say everything is the same as itself, but we certainly could make little use of this liberty, since no two things can be the same, by the very meaning of the word two. The truth of the matter is simply this :—when an object or a conscious state is undistinguishable from another object or conscious state, *except in the element of time,* we call the two the same. Complete undistinguishableness is an absurd expression, for it implies that there are two things (which involves distinction), and that we cannot distinguish them (which negatives distinction). It is also true that in common speech we apply the word *same* to objects that differ in place as well as in time; as when I move this sheet of paper, I recognise it as still the same. The word *like* is properly applied to objects or states that have elements of sameness in diversity,—that differ not only in place and time but also in other elements.

It is somewhat remarkable that Mill should cite the instance of a *person* as the type of identity. His only explanation of what he means by sameness, is when he speaks of two persons sitting at the same table. This plainly means that the two are at one table and not at two tables. If it is the same table, it must be the same table to different persons, or to the same person at different times. Hence it would follow that a 'permanent possibility of sensation' is the same to different minds; that is, the same sensations may exist in different persons, an expression just condemned by Mill; or the same sensations may recur in the same person, a view which he reprobates Bishop Berkeley for holding. It would be very easy to show from Mill's own writings that he uses *same* in the sense that he condemns, but as he could not make much use of the word in any other sense, his inconsistency may be pardoned. It will at least justify the use, in this discussion, of *same* as meaning undistinguishable except in time or place. I am aware that some may suspect that the subjectivity of time and space will lead to a world of absolute ideas; but so long as the common doctrine of the indestructibility of matter prevails, we should not perhaps, be involved in any glaring inconsistency.

The first question that is important in Nominalism is this:—Does an individual object, when classed by the mind, call up another individual object having certain points of likeness or sameness, or does it call up simply the points of likeness? Does it call up other objects, or only revive certain attributes? When I see a circle and call it round, do I necessarily have a concrete idea or image of another object, agreeing in some respects with the circle, and differing in others; or do I call up merely certain qualities or elements that I recognise as the same as some of those that I at present experience? Or, in subjective language, when a conscious state takes place, do I recall former states, or a former state, resembling more or less the present state; or do I recall only certain elements of former states that I know to be the same as certain present elements?

As to this question, I cite the following expressions from Mr. Bain and John Mill. Mr. Bain says:—"We are able to attend to the points of agreement of resembling things and to neglect the points of difference. . . . We can think of the roundness of spherical bodies, and discard the consideration of their colour and size." This he calls abstraction. He goes on, however, to say:—"Every concrete thing falls into as many classes as it has attributes: to refer it to one of these classes and to think of the corresponding attribute, are one mental operation. . . . To abstract the property of transparency from water is to recall at the instance of water, window glass, crystal, air, &c. . . . Hence abstraction does not consist in the mental separation of one property of a thing from the other properties—as in thinking of the roundness of the moon apart from its luminosity and apparent dimension. Such a separation is impracticable; no one can think of a circle without colour or a definite size. . . . Neither can we have a mental conception of any property abstracted from all others." (*Mental Science*, Bk. III. c. 5.)

I fail to reconcile the above propositions—"We can think of the roundness of spherical bodies, and discard the consideration of their colour and size," and this is abstraction; but "abstraction does not properly consist in the mental separation of one property of a thing from the other properties—as in thinking of the roundness of the moon apart from its luminosity and apparent dimension". So far as I can see, Mr. Bain regards the process of thinking of anything and discarding other considerations, as a very different matter from thinking of anything apart from other considerations. I do not know that the word *apart* is very significant, and perhaps every one would be contented with the admitted power to discard the consideration of other attributes than the one we think of. However, it is clear enough from the illustration of transparency that Mr. Bain's opinion is that we recall not attributes but objects.

Mill employed very nearly the same expressions—"We can only be conscious of the attributes which are said to compose the concept as forming a representation jointly with other attributes which do not enter into the concept." "The formation of a concept does not consist in separating the attributes which are said to compose it, from all other attributes of the same object, and enabling us to conceive those attributes disjoined from any others. We neither conceive them, nor think them, nor cognise them in any way as a thing apart, but solely as forming, in combination with numerous other attributes, the idea of an individual object. But though thinking them only as part of a larger agglomeration, we have the power of fixing our attention on them, to the neglect of the other attributes with which we think them combined. While the concentration of attention actually lasts, if it is sufficiently intense, we may be temporarily unconscious of any of the other attributes, and may really, for a brief interval, have nothing present to our mind but the attributes constituent of the concept." (*Exam. of Hamilton*, c. xvii.)

Here again I must confess my inability to reconcile the statement—"We can only be conscious of the attributes which are said to compose the concept as forming a representation jointly with other attributes which do not enter into the concept," with the statement—"We may be temporarily unconscious of any of the other attributes, and may really, for a brief interval, have nothing present to our mind but the attributes constituent of the concept". We cannot think concepts "as a thing apart," but we can neglect and be unconscious of any other attributes with which we think them combined. I think most persons would suppose that when they were unconscious of all but certain attributes, they were thinking those attributes apart from others; and if not as "a thing," it would perhaps be hard to define a thing. The only way to reconcile these statements, so far as I can discover, is to emphasise the expressions "forming a representation" and "a thing apart". But would Mill admit that we could have nothing present to the mind but certain attributes, and yet that those attributes did not form a representation? I think he must admit this if he is to reconcile the above statements. But if he take this ground he certainly would confuse his own followers, and would in addition lay himself open to the criticism that he has made of Hamilton. Hamilton says, "The concept cannot be represented in imagination, and if not, cannot be applied to any object, and if not, cannot be realised in thought at all". But Mill ridicules the idea that we can *think* as opposed to image or picture in thought. He overlooks the distinction that Hamilton would make between thinking and realising in thought. By so doing he forbids us to explain in this way his own inconsistent statements, and if we have nothing present to our mind but the attributes constituent of the concept, they must be present as a representation; unless he means to distinguish between presentation and representation. But the mere operation of closing the eyes, which would cause us to pass from one kind of knowledge to the other, would hardly hinder us from keeping our attention fixed upon those attributes which had monopolised it. In short, if we can, for a brief interval, have nothing present to the mind but certain attributes, why may we not have this state of mind over again, when an object comes up having those attributes? If I have the power in one case, I do not see why I have it not in the other.

Mill goes on to say:—"General concepts, therefore, we have, properly speaking, none; we have only complex ideas of objects in the concrete: but we are able to attend exclusively to certain parts of the concrete idea; and by that exclusive attention, we enable those parts to determine exclusively the course of our thoughts as subsequently called up by association. . . . What principally enables us to do this is the employment of signs, and particularly the most efficient and familiar kind of signs, *viz.*, names."

If Nominalists allow that by attention we enable certain attributes to determine exclusively the course of our thoughts, it is probable that most Conceptualists would be willing to admit that signs and names are our chief assistants in this. But no sign has any power in itself. All that it does, it does by means of its connexion with a given state of mind, which state may be well enough described, in Mill's language, as the presence of nothing but the attributes constituent of the concept—certain parts that determine exclusively the course of our thoughts. In point of fact, if we use a sign at all, we are taking a part to stand for the whole; and why not a part of the attributes to stand for the whole of them? The fact that we often use a part only of the attributes forming a concept, shows only that we get along with something less than perfection in our reasoning; if we always used the whole concept there would be very little false reasoning. A name becomes virtually one of the attributes of an object, like the bell to the wether; but the connexion is conventional. A name is not applied to an isolated experience. The difference between singular and general names is merely one of degree. When the same state recurs a number of times, we name it. When we have a number of states nearly the same except in place, we give them all one name. Hence arise proper and common names, the difference between them being merely in the degree in which sameness exists in diversity.

A definition has been recently offered by the Editor of MIND, to this effect—"Nominalism is the view according to which the mind is declared impotent to know generally or to conceive without the help of some system of definite particular marks and signs." This seems to admit a power in the mind to know generally, which is perhaps more than many nominalists would say. But the question that we have been considering does not seem to me to be touched by this definition; for the signs may be either attributes or objects. We conceive colour through particular experiences of colour, and having attained the concept, it is thereafter used whenever an experience of colour takes place. Mill says:—"When we think a relation, we must think it as existing between some particular objects, which we think along with it; and a concept, even if it be the apprehending of a relation, can only be thought as individual, not as general." Doubtless the mind does not think blank relations, although it applies them in all experience. It is also true that any act of the mind is an individual act, no matter what the act may be. In this sense the concept is individual, just as the *person*, recognised as the same by Mill, in the passage above referred to from Whately, exists in individual acts or states.

We have here the suggestion of a far more important question involved in the doctrine of Nominalism. If the dispute were merely as to whether we were reminded of a greater or less number of attributes when we observe any object—for after all, what do Nominalists mean by an object but a collection of attributes?—it might well be concluded that no more time should be wasted in this way. But there is a question that it seems to me the Nominalists have never fairly faced. Again I must refer to the most candid of philosophers. Mill says:—"This notion of a concept as something which can be thought," but "cannot in itself be depicted to sense or imagination," is supported, as we saw, by calling it a relation. "As the result of a comparison," a concept necessarily expresses a relation; and "a relation cannot be represented in imagination". If a concept is a relation, what relation is it, and between what? "As the result of a comparison," it must be a relation of resemblance among the things compared. I might observe that a concept, which is defined by our author himself as "a bundle of attributes," does not signify the mere fact of resemblance between objects; it signifies our mental representation of that in which they resemble; of the "common circumstance" which Sir W. Hamilton spoke of in his exposition of classification. "The attributes are not the relation, they are the *fundamentum relationis*."

It is, however, this "mere fact of resemblance" between objects, that is the source of all dispute. Likeness is an attribute according to Mill's *Logic*, although grounded upon states of consciousness which are peculiar, unresolvable, and inexplicable. Can this attribute be depicted to sense or imagination? If objects resemble each other in but a single respect, may we have a mental representation of that in which they resemble? And if we may have a mental representation of a single attribute, what is the difference between the relation and the *fundamentum relationis?* If we cannot depict this attribute to sense or imagination, of what nature is our knowledge of it? If a number of states resemble each other in a given way, so that we call them all experiences of colour, have they not some common attribute? and can that be depicted? and, if not, how do we know it?

All Nominalists agree that we perceive likeness between different objects. On observing a phenomenon, I at once become aware that it is like some other phenomenon before observed; I cease to observe points of difference and fix my attention on points of likeness. So much all agree upon. Perhaps some Nominalists would say that they discover in two objects something that is the same. This is what the old Realists called the universal, the one in many. If this is not admitted, what is meant by discovering likeness? If it is said that likeness is a relation, we must ask whether there is not involved in every relation a certain identity, or community, or likeness? And if so, we are back at the starting point, and we have discovered something like in different objects, the universal.

Again, using subjective language, I become aware that my present state resembles a previous state. I cease to notice the elements of difference, and attend to the elements of likeness. Have I not discovered in myself the same affections that I had before? Must there not be an element in both states that is the same except in time? I do not understand how this can be denied, and, if it be not denied, then again I recognise the universal. In naming, we observe likeness in a number of states, and fix on a vocal sign that will call up any of them. But one name could not be applied to many different states, unless we had observed something common in them, and this common element is the universal. Because we have observed it, we name it.

Hobbes says :—"This word *universal* is never the name of anything existent in nature, nor of any idea or phantasm formed in the mind, but always the name of some word or name." But if no universality, no sameness, no likeness exist, why are there names common to many things? I wish Hobbes were alive to reply to this dilemma :—If there is no likeness in our conscious states, why do we apply the same word to several of them? and if there is likeness in them, what is meant by saying that universal is not the name of anything existent in nature, or of any idea in the mind? If the objection is simply to calling any natural object, or any given conscious state, *universal*, then few would differ with Hobbes. But he cannot deny the existence of universals, without explaining why we have common names at all.

We get no more light from Hume. "General ideas are particular ones annexed to a certain term, which gives them a more extensive signification and makes them recall upon occasion other individuals which are similar to them. A particular idea becomes general by being annexed to a general term, that is, to a term which from a customary conjunction has a relation to many other particular ideas and readily recalls them in the imagination." But why has the term had this relation? Whence the customary conjunction? I can think of no reason but the resemblance of the particular ideas.

In spite of the physiological investigations that draw away so many inquirers on what is perhaps a false scent, there is a growing disposition to speak of matter in terms of mind. But the true Nominalist regards both terms as abstractions. To him the only reality is the particular conscious state: self, mind, and matter are all derived from that. In short the Nominalist admits no such thing as substance in the proper sense, the 'what' anything is, as Aristotle says. At the same time the Nominalist must speak of the power we have of discerning similarity. Avoiding the troublesome expression 'external object,' the similarity must be between one mental state and another mental state.

How then can the mind become aware of the similarity between its states, unless there is a persistent consciousness? Or, to do away with abstractions, how can the only real existence, one mental state, have any knowledge of another mental state which it calls its own? It must here be remarked that the question whether we have an immediate knowledge of the past, or not,—discussed among others by Reid, Hamilton and Martineau, and recently (under the heading "Intuition and Inference") laboriously reviewed in the columns of MIND,—this question is of fundamental importance to the present inquiry. I *know* what I feel, as colour, heat, anger. I *infer* the existence of one state from another state. In inference we introduce the law of causation. We can always ask why we infer. We cannot ask why we know. Immediate inference is a contradiction *in adjecto*. It cannot be distinguished from knowledge. But when I say, on the presence of one state, I have had this state before, there is no inference. The knowledge of the present state contains also the knowledge that I have had it before; for there is no ground for inference to rest upon. The only ground assignable is the feeling itself that the state has been felt before, and this is therefore both the inference and the ground of the inference. Suppose any one to tell me that I did not have this state before. I can only reply to him, I know that I did have it. But in a case of inference I can give a reason, *viz.*, the uniformity of nature, which is the ground of all inference.

Let us consider the first mental act involving memory. How can I then infer that a present state resembles a past state? As the present state comes on, there comes with it the feeling of similarity—this is the very essence of memory. Are we ignorant what this feeling of similarity means until we have experienced it a number of times, and then infer that it means the repetition of a state of consciousness? A thousand experiences would not tell us this, unless every one told us something of it. Continual dropping wears away stone, but it is because every drop wears away the stone; if it did not, a multitude would not. Unless we know beforehand what the feeling of memory means, we cannot possibly *infer* that it means a former state revived. In two words, unless a feeling has formerly existed, we cannot remember it. The remembrance is the proof, and the only possible proof of its existence.

If it be said that I may be mistaken in supposing a present state to resemble a past state, I reply—Impossible. Mental states are complex, and it often happens that, from the presence of a certain remembered element, we infer the presence of others that we do not remember, and from these others likeness to a past state may be discovered. I see a face and immediately say I have seen that face before. I suppose myself to have an immediate knowledge of that fact. But I may be convinced that I never saw the face before. What then becomes of my immediate knowledge? Really there were certain features in the face, certain elements in the state, that were the same as some previously experienced, and so much I *knew*. I *inferred* from a partial resemblance of states a resemblance in every respect. I inferred mistakenly. But that I knew mistakenly, is absurd. It is hopeless to maintain that my consciousness that I have experienced a given state before may be deceptive. In that case my consciousness that I have the state now may be deceptive. The principles of the Association-school require this conclusion. If, in a certain complex state, all the elements were entirely new, even in their proportion and composition, could this state recall any other state? It could not, for lack of any bond of association. If only some of the elements in the state were new, then other states would be recalled by means of the known elements and the process would be inference; but there is nothing to infer from in the case of a simple act of memory: the feeling that we have had the state before is the act of memory itself, and not an explanation of the act.

In the case of Self, if we call it a bundle of states of consciousness, we imply something that ties the bundle together. A number, or series, or succession of feelings does not make a mind, for they may be anyone's feelings. A thread of feelings, however, implies a connexion. In the case of all association, some bond, or tie, or link is required. In effect I recognise in association the synthetic power of the mind. Two states that have occurred together tend to recur together, and in this way, it is said, we get our idea of cause. But why should these states tend to recur together? why should present states recall their like? This may be called an ultimate fact, admitting no explanation. But do we not really postulate a persistent something that is modified, and in consequence of these modifications is liable to them again?—as we say motion tends to follow an established course. Read through Kant, the Association-school seems to me full of truth. Taken by itself, its fundamental weakness is in the supposition that by successive additions of nothing something will finally be developed. Unless the mind has a native capacity for thinking under the category cause, I do not understand why any number of conjunctions should create the idea. If there is no discernment of causation in the first conjunction, why should there be any in the second? and if none in the second, why in the third, or in all? Obviously we are expected to believe that every conjunction has some effect in developing the idea. But if it has any effect at all, this implies the pre-existent or co-existent capacity.

All that is meant by Substance is the fact that several attributes or capacities are associated together, and we naturally express this fact by saying that something holds them together. This something is by its nature incapable of definition, for by defining it we should make it predicate and no longer subject. Locke appreciated this when he reluctantly maintained the existence of substance, although no other assertion could be made concerning it. Mill seems often on the point of appreciating this truth, as in the remarkable passage at the end of the twelfth chapter of the *Examination*, and where he maintains that our notion of mind is the notion of a permanent something contrasted with the perpetual flux of the sensations and other feelings or mental states which we refer to it—a something which we figure as remaining the same, while the particular feelings through which it reveals its existence, change. He declares also, that one of the best and profoundest passages in all Sir W. Hamilton's writings, is that in which he points out (though only incidentally) what are the conditions of our ascribing unity to any aggregate. "Though it is only by experience we come to attribute an external unity to aught continuously extended, that is, consider it as a system or constituted whole, still, in so far as we do so consider it, *we think the parts as held together by a certain force*, and the whole, therefore, as endowed with a power of resisting their distraction." Mill needed only to add that this force is the synthetic force of the mind, giving rise to the unity of apperception, and he would have explained why he felt that Hamilton had laid hold of a profound truth. He did not do so, as he might consistently as an idealist have done, and his failure has left psychology still a battle-ground. His opportunity was a rare one, for no man will soon get the ear of the world of thinking men as he did, and physiological investigations will doubtless for some time to come occupy most of the attention of psychologists. Nevertheless the profound truths that Mill was scarcely able to receive —he himself, in his inveterate attachment to his father's school, is the best witness to the power of association—must again engage the attention of thinkers, and philosophy must be regarded as at a standstill until the present policy of dismissing, as old lumber, questions that relate to the commonest mental processes, shall be abandoned. Realism has been succeeded by Conceptualism, because of the gradual growth of Idealism, and is not likely to be revived. The Conceptualists are by no means clear or agreed in their statements, but they seem to be disposed to recognise what the Nominalists ignore. The mind as substance and relations as modes of this substance manifested in knowing, are positions that require on the part of Nominalism more refined analysis and definition than it has yet offered to the world.

David McGregor Means.

MR. F. GALTON ON GENERIC IMAGES AND AUTOMATIC REPRESENTATION.

Mr. Francis Galton has lately published the results of two original psychological investigations, which are of great interest in themselves and admirable specimens of that kind of positive experimental inquiry to which the phenomena of mind can be subjected in only a less degree than the phenomena of nature. The account of one of his researches is given in a popular form in *The XIXth Century* of March last, under the title of "Psychometric Facts," and with greater precision in *Brain*, Pt. VI., of last July, under the title "Psychometric Experiments". The other is the subject of a paper in *The XIXth Century* of July, entitled "Generic Images". Here Mr. Galton has followed out an earlier line of investigation to which some reference has previously been made in these pages, and a short account of the results to which it has now led him may first be given.

The composite portraits which Mr. Galton sought originally to obtain in illustration of the Types of Human Character (see MIND VIII., p. 573), are now used by him to throw definite light upon what he calls "blended memories," or, after Prof. Huxley, "generic images," —meaning that class of concepts, arising from the fusion of like *sensible* images, which some German writers are in the habit of distinguishing as the *Allgemeine Vorstellung* from the *Begriff* proper. As Mr. Galton, after long trial, has found, two or more portraits that have many points of likeness in common and especially characteristics of a medium quality rather than such as deviate widely, may, if they are of the same size and taken in the same attitude, be combined into one by converging their images from different magical lanterns on the same screen, or through an arrangement of cameras whereby their images are thrown simultaneously on the same photographic plate, or again with one camera by throwing their images, carefully adjusted, upon the same plate successively (which last process best illustrates the blending of memories). The resulting composite portrait is identical with no one of the components, but comprises them all, each having its own share in the total effect; and it is a full picture, not a mere outline like that which Quetelet was able to draw of the typical man by fixing the average position of points according to the ordinary numerical methods of statistics. Including the features of all its components, however great be their number, it is much more than an average: it is, in fact, the pictorial equivalent of the elaborate statistical tables out of which averages are deduced; while, being blurred something like a damp sketch, it shows in the breadth of the blur the variability of individuals from the central typical forms.

Now nothing, Mr. Galton urges, could better represent what is meant by a generalisation, when the objects generalised are objects of vision and belong to the same typical group—that is to say, with medium characteristics far more frequent than divergent ones; and he finds fault with those who, after Hobbes and Berkeley, have too rashly pronounced all generic representation impossible, because it is impossible to frame any definite representation of objects which no careful statistician would think of putting together—*e.g.*, a representation of man, as including women and children. It is quite possible, he maintains, to produce a good generic representation, if we take any one of the principal races of man, and confine our portraiture to the adult males, or adult females, or to children whose ages lie between moderate limits. For himself, he always experiences, at the moment when the adjustment of portraits to make a composite is being effected, a quick sense of satisfaction like that felt on the first recognition of a doubtful likeness of any kind; and he is as sure as it is possible to be in the circumstances that there is a true (and not merely metaphorical) analogy between catching the coincidence of two similar portraits optically superposed and catching the coincidence of a visible object with a past impression or a pre-existent general idea.

But though he contends for the analogy, he does not now stand by the opinion he expressed in a memoir read last year to the Anthropological Institute, that the composite portrait exactly represents such a generic image as would be had by a mind endowed with the power of pictorial imagination in an exalted degree. In a succession of many different pictures displayed each for the same brief period, if there should be one single picture displayed fifty times in succession or for fifty times as long as the others, its share in the photographic composite (or in the corresponding case of numerical statistics) would be exactly fifty times as great as any of the others; but the like does not hold of the generic image. The familiar fact that sights on which we have not lingered often leave abiding impressions, while the pictures that hang on the walls before our eyes every day of our lives are not always remembered with vivid distinctness, shows of itself how different is the case of mental imagery. Mr. Galton is now inclined to suppose, upon the strength of experiments not yet far enough advanced for publication, that the relation between the varying periods of exposure and the strength of the corresponding *mental* impression follows the law of Weber; according to which, if it requires a tenfold period of exposure to make a doubly deep impression on the mind, it would require a hundredfold period to make a trebly deep one, and so on. But whatever the precise form of the law, its effect, he maintains, is to prevent generic images from having the same definition and simplicity as the corresponding photographs. The most extreme elements will always leave their traces very visibly, because the medium elements are not present in sufficient number to overpower them. In other words, the effect produced by the huge bulk of ordinary facts is never in proportion to their numbers, and undue consideration is given to all exceptional cases. Then, besides this inevitable defect in the mind's power of forming true generalisations, some of the images in every presumed generic group are sure to be aliens to the genus and to have become associated to the rest by superficial and fallacious resemblances; and, again, the number of pictures blended together is sure to fall far short of the whole store that would be available, if the memory were immeasurably stronger than it is and more ready in its action. All which implies that the human mind is a most imperfect apparatus for the elaboration of true general ideas; and if there are such defects in its best generic images, much less can trust be reposed in those mere traces of them called "general impressions," that are allowed to govern the majority of our everyday actions as by a prescriptive right beyond all question.

Such are the main points of the paper on "Generic Images," given for the most part in Mr. Galton's own language; to the exclusion, however, of one of his modes of expression which can hardly be justified. When he speaks, as he sometimes does, of a generic image as "a generic portrait stamped on the brain," the phrase is surely misleading: it is not *on the brain* that any portrait is stamped, generic or other. What Mr. Galton seems really to have established is that, just as from coincidence of a number of resembling percepts there may be made to arise a composite percept with a more or less definite character, so a number of similar (representative) images will blend into a compound which, though not so definite as the corresponding composite percept, has still the character of a single image. We do not naturally have the opportunity of blending percepts into one: similar objects are *perceived* by us, in the conditions of our perception, only successively or as standing apart from each other in space. On the other hand, we have in the *concept* a multitude of percepts brought together into a unity quite other than that of a *collection* (whether as actually perceived or as representatively imagined). Now it has always been disputed among psychologists what the precise nature of the conceptual representation is; and while some have not hesitated to assert that the representation is quite definite not only in the case of the less general concepts, such as *man*, but also in the case of all concepts whatever, to the very widest, others, finding it impossible to represent the more general concepts with any definiteness, have been led on to deny the possibility of representing definitely anything but the singular percept. There are no limits, says the one set of theorists, to the mind's power of definite representation: the least amount of similarity amid whatever amount of difference in whatever number of instances may be definitely imagined. There is the strictest limit, says the other set of theorists, to the mind's power of imagining: the least amount of difference amid whatever amount of similarity in even two instances is a bar to any such imagination of the two together as can strictly be called a conception of them. And so the dispute has gone on, each side having partial hold of the truth. There are concepts which there is no possibility of definitely representing and which the mind keeps hold of only by the help of a definite name or sign. On the other hand, there is a kind of image, more or less definite, which in certain circumstances arises in the mind as representative of a number of resembling objects without being exactly representative of any one of them, and which is thus a true concept. This solution of the long-standing dispute has been at times suggested, and Mr. Galton's experiments may now be regarded as providing the positive verification that was wanting to its acceptance.

His artificial composition of actual portraits shows how the mind would deal with a number of similar percepts could they naturally be presented to sense superposed upon one another; and since, in point of fact, the mind has to deal with a number of similar representative images that are, as it were, superposed on one another, it is reasonable to suppose that the result in natural imagination is strictly analogous to the results obtained in Mr. Galton's artificial perception. At the same time the fact, on which he lays so much stress, that the fusion of percepts has its limits—that a certain amount and kind of similarity is required in the portraits for the formation of a composite—clearly indicates that conception does not always take place by way of imagination, or if by imagination then by one so blurred and indefinite that some other means of definition—*e.g.*, the use of names, &c.—is rendered necessary. And what is here said of the mind applies, *mutatis mutandis*, to the brain, which, though it does not take on "portraits," either in perception or conception, is involved in both of these mental processes and must be supposed to work in a similar fashion in the two cases, so strictly related as they are to one another.

Let us now turn to Mr. Galton's other subject of experiment. Dividing the processes of "thought" into two classes—(1) where "ideas present themselves by association either with some object newly perceived by the senses or with previous ideas;" (2) where "such of the associated ideas are fixed and vivified by the attention as happen to be germane to the topic on which the mind is set"—he confines himself to the first case, where the mental flow of representation is strictly automatic, and his object is to show that it can be rigorously investigated, with the result of laying bare some of the inmost workings of the mind.

The difficulty of the inquiry is that the mental process of representation must be closely watched and yet in no way controlled; and this Mr. Galton surmounted by the following method. Starting from the sight of a number of words, presented one after another, he allowed the mind to play on each for a very brief period till a couple or so of ideas had arisen, each *directly* suggested by the word, and then, turning attention full upon their traces still remaining, he recorded at the time their exact appearance, afterwards collating the records at leisure. This method was a refinement upon an earlier mode of experiment, in which he walked slowly along Pall Mall for a distance of 450 yards, scrutinising attentively every object that caught his eye and dismissing it for another as soon as it had raised a couple of direct representations. Here the record, being made at the end of the whole series, could only be very imperfect, but it was sufficient to show him that the sight of about 300 objects in succession could call up samples of his whole past life, including many bygone incidents which he had never suspected to form part of his stock of thoughts, though they were actually glanced at as objects too familiar to awake the attention. A second trial of the experiment, after a few days, showed however that, strangely active as the mind thus seemed to be, there was really a very great deal of repetition in the two sets of representation, and thus it became important to devise the other method of experiment, whose results could be submitted to statistical analysis. A selected list of suitable words (carefully dismissed at other times from thought) was gone through by Mr. Galton on four different occasions, at intervals of about a month, in very different circumstances; each word was disclosed to view without the least knowledge what it would be, and as soon as the requisite associates were obtained (always by way of direct suggestion from the word, on which attention was kept firmly fixed while the associates were taken in as by a half glance), they were written down, with the time they occupied (as ascertained by a chronograph started by pressing a spring at the moment of disclosure and stopped by releasing the spring at the close of each experiment). The work was most repugnant and laborious, and could be accomplished only through great self-control; but Mr. Galton says he soon got into the way of performing it all in a very methodical and automatic manner, keeping the mind, "as it were, at full cock and on hair-trigger before displaying the word," and undisturbed when the time for stopping came.

With a list of 75 words, these were the main positive results. 505 ideas were suggested in the course of the four trials, during an aggregate time of 660 seconds—at the rate, therefore, of about 50 a minute (which is much slower than the unbroken flow of representations in reverie). But of the 505 actually suggested, only 289 were different ideas. On presentation of the same word, 29 recurred all the four times (making 116 of the total), 36 three of the times (108), 57 twice (114), and only 167 singly. This, says Mr. Galton, shows much less variety than he expected, and proves that the mind is perpetually travelling over familiar ways without our memory retaining any impression of its excursions; it is apparently always engaged in mumbling over its old stores, and if any one of them is wholly neglected for a while it is apt to be forgotten, perhaps irrecoverably. Nor, as he thinks, is it keen interest and attention, when first observing anything, that fixes it in the memory: we forget the time of trains so carefully studied in *Bradshaw* for a journey, moves at whist, &c., &c. Unless the subject has a continued living interest and is often referred to (consciously or unconsciously), it will, as a general rule, sink beyond recall. There did, in the course of the experiments, come up (under no less than three aspects) one recollection from his boyhood which he thought had entirely lapsed; notwithstanding, he strongly suspects that ideas which have long since ceased to fleet through the brain disappear wholly, and he is no believer in the common notion that things once perceived can never vanish entirely from the memory but that, in the hour of death or under some excitement, every event of a past life may re-appear. The supposed recollection of a whole past life would turn out to be only of a large number of episodes in it, to be reckoned in hundreds or thousands, certainly not in tens of hundreds of thousands. Mr. Galton adds the remark that, as the associated ideas that came up were mostly unshared experiences of his own, the experiments show *measurably* how impossible it is in a general way for two grown-up persons to lay their minds side by side together in perfect accord: the same sentence cannot produce precisely the same effect on both, and the first quick impression that any given word in it may convey will differ widely in the two minds.

In 124 cases out of 289, Mr. Galton was able to fix the date at which the associated representations became first attached to the words, with the following results. 48 dated from boyhood and youth, 57 from subsequent manhood, and only 19 were of quite recent date. Also it appeared that of the earliest associations no less than a quarter occurred in each of the four trials; of the second class, one-sixth; while of the most recent, not one came up in all the four trials. Hence, says Mr. Galton, we may see the greater fixity of the earlier associations, and might measurably determine the decrease of fixity as the date of the first formation becomes less remote.

Finally, Mr. Galton sought to classify the associated representations in respect of their intrinsic character and to connect this with the different kinds of words employed to start them. The representations fell into three main groups: (1) the imagined sound of words, as in vocal quotations or names of persons; (2) sense-imagery of all kinds, but especially visual; (3) representations of action performed by self or by others, and which might be called "histrionic". The words presented fell also into three groups: (1) such as *abbey, aborigines, abyss,* representable under some definite image; (2) such as *abasement, abhorrence, ablution,* admitting of histrionic representation; (3) such as *afternoon, ability, abnormal,* more abstract in character. Upon a comparison, then, of the one set of groups with the other, it appeared that of the associates of the *abbey* series, 43 per cent. were sense-images, 11 per cent. histrionic, and 46 per cent. verbal (names of persons being here especially numerous). In the *abasement* series, 33 per cent. of the associates were histrionic, 32 per cent. sense-images (merging into the histrionic), 35 per cent. verbal (names of persons here in the minority, as compared with Biblical scraps, family expressions, bits of poetry, &c.). In the *afternoon* series, as many as 53 per cent. of the associates were verbal (with a great preponderance of mere catch-words), the sense-images and histrionic representations being respectively 22 and 25 per cent. Here the preponderance of catch-words, which intruded themselves before the thoughts became defined, shows with what difficulty the meaning of abstractions is realised; and it even happened in 13 cases that the original word presented was so puzzled over that, within the maximum time of four seconds allowed, either nothing at all was suggested or after a first idea the second was too confused and obscure to admit of record. As to the *order* in which the representations arose, the lead was taken by the Histrionic ones whenever they occurred; Verbal associations occurred first and with great quickness on many occasions, but on the whole they were only a little more likely to occur first than second; Imagery was decidedly more likely to come up second than first.

Mr. Galton concludes his account (in *Brain*) of this remarkable investigation as follows :—

"Perhaps the strongest of the impressions left by these experiments regards the multifariousness of the work done by the mind in a state of half-unconsciousness, and the valid reason they afford for believing in the existence of still deeper strata of mental operations, sunk wholly below the level of consciousness, which may account for such mental phenomena as cannot otherwise be explained. We gain an insight by these experiments into the marvellous number and nimbleness of our mental associations, and we also learn that they are very far indeed from being infinite in their variety. We find that our working stock of ideas is narrowly limited, but that the mind continually recurs to them in conducting its operations ; therefore its tracks necessarily become more defined and its flexibility diminished as age advances."

It is to be hoped that Mr. Galton will continue to work in a vein which his psychological tact renders so fruitful of results. EDITOR.

THE SO-CALLED IDEALISM OF KANT.

In a note with the above title in the last number of MIND, Mr. Henry Sidgwick makes some criticisms on a passage in my reply to Mr. Balfour (MIND XIII.) ; Mr. Sidgwick has, however, misunderstood what I said, partly, perhaps, from the too great brevity with which I expressed myself ; but partly also, I think, from his not attending sufficiently to the context of the passage which he quotes.

Mr. Sidgwick gives the following re-statement of my views :—

"I understand Mr. Caird to affirm (1) that Kant held a doctrine which may properly be called Idealism, because he regarded the question whether or not there is an existence of things-in-themselves independent of our perception of them as 'meaningless ;' and (2) that in his 'Refutation of Idealism,' he substituted for this the question whether or not we have an explicit consciousness of objects in space outside our bodies prior to the explicit consciousness of self as an object."

On this I have to remark, (1) That I did not call Kant an Idealist because of his doctrine in relation to things-in-themselves : on the contrary (as I have shown at great length in my book), I consider that doctrine the main point in which his Idealism is incomplete. Still, I think it is quite fair to contrast Kant's philosophy as Idealism with the so-called Idealism of Berkeley, which should rather, I think, be called an undeveloped Sensationalism. (2) As I do not deny that Kant held the doctrine of the existence of things-in-themselves, I could not possibly say that, in every point of view, the problem whether they exist or not was to him unmeaning (though of course I hold that the legitimate result of his transcendental method is to do away with them). But what I meant to say, in the passage quoted by Mr. Sidgwick, was, that the idea of transcendentally deducing the existence of things-in-themselves as objects of experience, in the same manner as he attempts in the 'Refutation of Idealism' to deduce the existence of phenomenal objects in space, would have been, for Kant, unmeaning. And for this, I think I can bring Kant's own words in evidence. (3) I said nothing about the "consciousness of objects in space *outside our bodies*"; the words italicised would deprive Kant's argument, as I understand it, of all meaning, for what he seeks to show is that inner experience implies outer experience, and the consciousness of our bodies is surely not a part of inner experience.[1] My point, in short, is, that the problem of the relation of inner to outer experience takes for Kant the place which in previous philosophy had been given to the problem of the relation of consciousness to things outside of consciousness. I shall say a few words on each of these points.

(1) Before the passage quoted by Mr. Sidgwick I used the following words:

> "Mr. Balfour tries to fortify his argument by saying that Idealists, of all men in the world, as they hold that the *esse* of things is their *intelligi*, ought to hold that there is nothing in the thought of the individual of which he was not conscious. Now, Idealism is based on the truth that the only intelligible meaning of objectivity or existence, is objectivity *for a thinking subject*, and that of an object external to thought we can say nothing. But this no more implies that the individual subject must have brought to consciousness all that is involved in his knowledge of objects, than it implies that every individual subject must be omniscient." Then follow the words quoted by Mr. Sidgwick: "The truth is that Mr. Balfour has never realised the difference between the so-called Idealism of Berkeley and the Idealism of Kant," &c.

The distinction which I was here attempting to express will be clear, if we remember that, for Kant, the contrast between 'my ideas' (*Vorstellungen*) and 'things outside of me' has two meanings. In one sense he would agree with Berkeley that we can know only our own ideas—in the sense namely, that we cannot know things which are *out of consciousness*, which cannot therefore be brought in relation to the conscious self. But in another sense he insists that we do know things out of ourselves; *i.e.*, things that are different from that series of inward states which constitutes the empirical self. The main aim of the 'Transcendental Deduction' is to show that we are conscious of objects, and of a world of objects, not through mere sense, but only in so far as the one self manifests itself as a synthetic principle, which binds together the manifold of sense by means of the Categories. But the complementary truth is, that we are conscious of the permanent unity of the self in the succession of its feelings or conscious states, only in distinction from, and in relation to, the world of objects so determined. The opposition of 'things outside of us' to 'our ideas,' *i.e.*, of the world of objects in space and time to the feelings, perceptions, &c., of the individual, as a series of states in one permanent subject, is therefore an essential part of the Kantian doctrine. And it is by this most of all that he is distinguished from Berkeley, to whom the *percipi* and not the *intelligi* is the *esse* of things. In other words, Berkeley could not legitimately hold that we know more than the states of our own individual subjectivity, while to Kant this individual subjectivity is merely one of the objects of experience, which we know in distinction from, yet in relation to, the other objects of experience.

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[1] Of course things outside of me might mean out of my body. A thing can only be *in* space as it is *out of* something else in space, and in familiar parlance we speak of our bodies as ourselves. But this is not one of the two senses which Kant distinguishes.

(2) The 'thing-in-itself,' is a presupposition which Kant makes at the beginning of the *Critique*, in order, as he afterwards tells us, "that we may have something to correspond to the sensibility as a receptivity". Ultimately, when the question arises as to the validity of this presupposition, Kant says that it is no object or element of experience, but merely a '*Grenzbegriff*' or limitative conception, which prevents us from assuming that in experience we are cognisant of the absolute reality of things. On the other hand, it casts no light on anything beyond experience, and, therefore, so far as experience or knowledge is concerned, we can know nothing of the thing-in-itself, not even that it exists. This Kant expresses in the following way:

> "The understanding limits the sensibility without enlarging its own scope; when, therefore, it warns the former not to presume to speak of things-in-themselves, but merely of phenomena, it represents to itself an object in itself, though merely as a transcendental object, as a cause of phenomena (which is not in itself a phenomenon). This object, however, it cannot think of either as quantity, as reality, or as substance, &c. (for all these conceptions require sensible forms in which they determine an object), and of it, therefore, we cannot say whether it is within or without us; whether if sensibility were taken away from us, it (*i.e.*, the thing-in-itself) would disappear along with the sensibility, or whether if the sensibility were taken away from us it would yet remain. If we please to call this object Noumenon, because the idea of it is not sensuous, we are at liberty to do so. As, however, we cannot apply to it any of the conceptions of the understanding, this idea remains for us empty, and is of no use whatever, except to mark the limits of the knowledge which we can get through sense, and to leave a space open which we are able to fill up neither by means of any possible experience nor by the pure understanding."—(*Kritik d.r.V.*, Ed. Rosenkranz, p. 234.)

The idea of the *Ding-an-sich* or Noumenon, is, therefore, merely a conception which limits our empirical knowledge; though, as we farther learn from the 'Dialectic,' it supplies us with an ideal to aim at in adding to that knowledge. By itself, it cannot be an object of knowledge in any of the three forms which it takes, in relation to inner experience, to outer experience, and to the totality of experience. For Kant, however, its existence becomes an object of belief, even of certitude, through the moral consciousness, and that in all its three forms, as consciousness of self, of the world, and of God. It is, therefore, in the idea of freedom, that is, of the self as a self-determining being, that Kant finally finds the key-stone that locks together the different parts of his philosophy and binds the end of it with the beginning. "This," he says, "is what Archimedes sought, a fixed point to which reason can apply her lever, resting it neither on the present nor on the future world, but on its own inward idea of freedom, which is presented to us as a secure basis through the immovable moral law". Or as he elsewhere puts it, "the idea of an intelligible world is only a point of view which intelligence sees itself forced to take up in order to think of itself as practical". (*Werke* VIII., p. 93.) The same view is briefly indicated in the preface to the Second Edition of the *Critique of Pure Reason.* Of course I do not here attempt to criticise Kant's doctrine, but merely to point out on what basis he ultimately rested that belief in the existence of things-in-themselves with which he started but which might seem otherwise to be made impossible by the advancing application of the transcendental method.

(3) With relation to the 'Refutation of Idealism,' Mr. Sidgwick's argument seems to me to rest upon the ambiguity already mentioned as to the contrast between 'things outside of me,' and 'my ideas,' as if the assertion of Kant that we know real things without us, and not merely our own ideas, *must mean* that we know things-in-themselves. And this presumption, Mr. Sidgwick strengthens by reference to a passage in the *Prolegomena,* where, in opposition to Berkeley, Kant asserts his belief that things-in-themselves exist without us, though we know them only in their phenomena. But, in the first place, it is to be noted, that in the 'Refutation of Idealism,' Kant is not arguing against Berkeley, whose doctrine was that the only thing is the perception, but against Descartes, to whom he attributes the doctrine that we *immediately know* only our own states of consciousness, and that from them we *infer* the existence of things without us. And in opposition to this doctrine, he naturally develops his view that the consciousness of our own ideas as states of ourselves presupposes the consciousness of objects in space, which are *without us* in the sense of not being part of that series of feelings or ideas which we identify with the self as opposed to the not-self. Nor in this 'Refutation' is there, as it seems to me, a single hint that Kant is speaking of things-in-themselves. On the contrary he begins by saying, that his object is to prove that "we have of outward things not merely imagination, but experience," and that he can best do this by showing that even "our inner experience, which was not an object of doubt to Descartes himself, is possible only under the presupposition of outward experience". And after the proof is finished, he repeats that he has been proving that "we have not merely outward imagination, but outward perception," and that he has been seeking to turn the tables upon those who had said that we reach our knowledge of outward things merely by reasoning from effect to cause. And the argument itself is based on the idea that it is only in outer experience, *i.e.,* under conditions of space with its permanent self-external parts, that we can find a matter of sense that can be brought under the category of substance, which is the basis of all time-determinations. Here again I do not stop to criticise the argument, but it is one which was familiar to Kant, and which reappears in many places of his works (*cf. Kritik d.r.V.,* p. 304, and *Metaph. Anfangsgründe,* p. 405, where the thought is most fully developed).

For the rest, it is quite true that Kant does not hesitate to speak of the thing-in-itself as *given* to us through sense, any more than he hesitates to speak of the object of experience as so given (*cf.* the first sentence of the 'Æsthetic,' where we find the two identified or confused together); but, as it is the whole purport of the 'Transcendental

Analytic' to show that objects of experience are known to us as such only through the synthesis of the Understanding, so, in the 'Dialectic' and the *Critique of Practical Reason*, he maintains that the *ideas* of things-in-themselves, *i.e.*, of the three Noumena, are derived only from Reason, and that the *certitude* of the existence of such objects comes to us only through the moral consciousness.[1]

With regard to the name 'Idealism,' it was not my intention to raise any controversy. How I came to use it, is shown by the first sentence of the quotation given above from my reply to Mr. Balfour. But if Plato is to be taken, as surely he should be, as the type of Idealism, it is a waste of good words to apply the name to any form of Sensationalism. And if this be true, Berkeley can be called an Idealist only because of the inconsistencies of his earlier theory, or because of the later view indicated in the *Siris*. Further, as is shown by the writings of Mr. Spencer and many others, this misuse of the term has led to great confusion; for, partly because of it, Kant, and even his most thorough-going Idealistic successors, have been assumed to hold the theory that all we can know is the states of the individual consciousness.

EDWARD CAIRD.

VII.—CRITICAL NOTICES.

The Data of Ethics. By HERBERT SPENCER. London: Williams and Norgate, 1879.

In the immense abundance of literary production a great deal of criticism is avowedly calculated to supersede the perusal of the works themselves. Such a book as the present, however, is among the rarest; and being on the most interesting of all themes, and withal lucid and short, the critic would be much mistaken in assuming that it will not be read by his own readers and many besides.

The field of Ethics has been crossed and re-crossed in many directions; and we are now called to follow a new and unbeaten track. Our interest and expectation are awakened, not simply on account of the general philosophic ability of the writer, which disposes us to listen to him on any topic that he may see fit to take up, but also because he regards the work before us as the end and outcome of all his labours, the object to which all the preceding parts of his systematic elaboration are preparatory. The philosophy of Evolution, which he has spent his life in constructing, is here to reach its application to practice. With a view to the popularity of the work, this may seem a disadvantage, as comparatively few of those that are attracted to a book in morals have followed the author through his long precursory series of *magna opera;* yet the disadvantage is not so great as might be so supposed, for such is the expository clearness gained from long familiarity with the materials, that the work is self-explaining in a remarkable degree.

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[1] It may, of course, be doubted whether the crude Realism of Kant's first language can be vindicated from the point of view of the *Critique of Practical Reason (cf. Phil. of Kant*, p. 530).

Although thus disclaiming the purpose of dispensing with the independent perusal of the work, yet without making a general survey of its plan and leading ideas I am unable to criticise any portion intelligibly.

The preliminary question necessarily is the definition or province of Ethics. What is meant by Conduct, and what by good and bad conduct? Conduct is the adjustment of acts to ends. As to Good and Bad, we must proceed systematically through the animal series; or trace the "Evolution of Conduct". The lowest creatures are characterised by insufficient adaptation of actions to the ends of existence; they move about at random, and live at the mercy of chance. But proceed upwards from the infusorium to the rotifer, and we find the actions better accommodated to the situation, and as a consequence greater chances of preservation. Move still upwards to the higher vertebrates, and look at the superiority of an elephant to a cod; go yet farther, and compare the civilised with the savage man: we find the same expression to apply—the multiplication of activity in the serving of useful ends, whereby life is increased both in length and in breadth. Turn next to the conservation of the species by the treatment of the young, and we find the same progress; in the lowest creatures only one germ in ten thousand comes to maturity. Lastly, take into account the social situation, where individuals act and react on each other, whether for prey or for assistance. There is here a like progress, shown in the like results; in the lower stages, mutual destruction; in the higher stages, mutual co-operation, with greater security of life and greater amounts of enjoyment.

This survey being premised, let us ascertain the meanings of Good and Bad. A good action is one that subserves either individual life, or the rearing of offspring, or the interests of the society at large. The relatively good is the relatively more-evolved. The highest conduct of all is what best reconciles all the three ends. Having reached this point, the author asks—Is there any postulate involved in these judgments of conduct; and answers Yes, namely, the question—Is life worth living? which question he briefly discusses, making out that both optimist and pessimist must assume that life is satisfactory or otherwise, according as it does, or does not, bring a surplus of agreeable feeling. He disposes of the ascetic theory as being the product of the inferior religious creeds; and in so far as any persons in the present day retain the ascetic view, he runs them into absurdity by asking what they mean by the virtue of administering to a sick person; is it to increase the pains of illness? He then reviews the ethical end expressed by "perfecting" one's nature, and shows that there is no other test of perfection than "complete power of all the organs to fulfil their respective functions". Then as to making "virtue" the standard, he criticises Aristotle and Plato, and finds that they are playing off juggles of language. He next argues that virtue could not be upheld as virtue unless on the supposition that it is pleasurable in its total effects. Again as to the "intuitional" theory, he shows that the holders cannot, and do not, ignore the ultimate derivations of right and wrong from pleasure and pain. He admits, however, that there is still among us a survival of the devil-worship of the savage, seen in our delight in contemplating the exercise of despotic power,—the worship that owns Carlyle as its prophet, disguising itself by denouncing happiness as pig-philosophy, and substituting "blessedness" as the end. So much for good and bad conduct.

In a new chapter, the author pursues the criticism of the ethical theories, under the title, "Ways of judging conduct". As a preliminary remark, he shows us with what exceeding slowness the idea of *causation* has been evolved. He is struck with the fact that all the theories—theological, political, intuitional, utilitarian—are characterised either by the entire absence of the idea of causation, or by an inadequate presence of it. Thus the theory of the "will of God" originates with the savage whose only restraint besides fear of his fellow men is fear of an ancestral spirit. Now the notion that actions are good or bad simply by divine injunction is tantamount to saying that they have not in their own nature good or bad effects. After reviewing Hobbes and the Intuitionists, he tells us that even the Utility school is very far from recognising natural causation. In other words, he enunciates his known principle, of which the present volume is the expansion, that morality is not an induction from isolated facts, but a deduction from the processes of life as carried on under established conditions of existence. The proof of this principle needs a survey of Ethics under four aspects—Physical, Biological, Psychological, Sociological.

In the four chapters devoted to the survey, Mr. Spencer's ethical foundations are laid. To begin with the Physical view. This treats conduct as so much motion suited to its purposes by paying respect to the law of conservation of force; in which view the ethical progress is progress to duly-proportioned conduct; and that conduct is increasingly coherent and definite, increasingly heterogeneous or varied, and tending to balance or equilibrium. "Complete life in a complete society is but another name for complete equilibrium between the co-ordinated activities of each social unit and those of the aggregate of units." The author admits that there is some strangeness in thus presenting moral conduct in physical terms.

The Biological view takes account of man's nature as an organism, or an aggregate of organs, to be maintained in due condition by regulated exercise, rest, and nutrition, and as liable to disorder by excess or defect. According to this view, the moral man is he whose functions—numerous and varied though they be—are all discharged in degrees duly adjusted to the conditions of existence. It is immoral to treat the body so as in any way to diminish the fulness or vigour of its vitality. One leading test of actions is—Does the action tend to maintenance of complete life for the time being, and does it tend to prolongation of life to the full extent? This position is not simply the consequence of the necessity of living in order to be happy; it takes us up to the farther doctrine that happiness is fulfilment of function in each and all of the organs. In fact the law of pleasure and pain—connecting pleasure with vitality and pain with the opposite—is here invoked as an indispensable link in ethics, and as one of the ways of rendering the science deductive, and of superseding the laborious if not impossible calculations of empirical hedonism. In this chapter Mr. Spencer illustrates the truth at great length as a practical and moral lesson, and one as yet very imperfectly apprehended. The dependence of the mental on the physical, so completely neglected by our forefathers in all but the most obtrusive instances, has been gradually receiving more attention, and Mr. Spencer will be hereafter distinguished for giving it an additional impetus, as well as for contributing to its more precise definition. It must necessarily enter more and more into the guidance of human conduct, and must to that extent become an ethical factor. The doctrine in his hands cuts closer than ever; he proceeds upon the assumption that pleasure points out the way to the healthy discharge of the functions, and pain to the opposite. He is not unaware of the exceptions, and regards them as an imperfection of adjustment destined to pass away as evolution reaches its term.

The Psychological view takes us to the genesis of the moral consciousness through conflict of states, and through the subordination of lower ends to higher. In order to this we must conceive pleasures and pains in the future, and by such conceptions hold in check all present urgencies incompatible with remoter interests. The yielding of the lower to the higher may, however, be carried to excess; the subordination is a conditional subordination. The pleasures of the present are not to be absolutely sacrificed to the pleasures of the future; the present is always to be counted at its own value in striking the balance. Mr. Spencer illustrates this by the practical absurdity of men living entirely for the future. The source of the feeling called moral obligation is now indicated. The essential trait being the control of some feelings by some other feelings, Mr. Spencer traces the different species of control from without, in political government, religious fear, and the general influence of society. All these have evolved with society, as means of social self-preservation. The penalties accompanying them impart the feeling of coercion, in other words, the sense of moral obligation. At the same time we are not to exclude from the aggregate the earlier and deeper element of self-regarding prudence, based on the penalties of improvidence. But now the moral motive, arising at first from external sources, is destined to transformation when the individual mind is completely accommodated to the social situation. The higher actions required for the harmonious carrying on of life, will be as much matters of course as are those lower actions prompted by the simple desires.

The Sociological view, already implied, is the supplement of the physical, the biological, and the psychological views. It teaches the modes of conduct for reducing individual antagonisms, and bringing about mutual co-operation. Out of this, by necessary deduction, we obtain the reasons for fulfilling contracts, for assigning benefits in proportion to services, which is Justice; and farther for the rendering of gratuitous services, in a certain degree, which is Beneficence. We see how social life is furthered, not merely by mutual abstinence from harm, but by exchange of services beyond agreement.

In a separate chapter, entitled "Criticisms and Explanations," Mr. Spencer compares his deductive theory of conduct with the Utilitarian computation, as handled by Bentham, Mill, and Sidgwick. I will return to this on completing the survey of his entire scheme. His next chapter is an illustration of the dependence of pleasures and pains on the state of the organism, and is equally necessary for his purpose, as being the completion of the theory of pleasure. People have often supposed that pleasurable agents, such as sugar to the taste, are so by intrinsic and absolute quality, the same to all persons in all situations. This is soon shown to be a mistake; and the opposite truth is one of great importance in the ethical point of view. Physical pain is immensely greater in a highly developed nervous system. Exercises that give great pleasure to some creatures give none to others; the system being in the one case adapted to them, and in the others not. Emotions presuppose a suitable organisation. Destructiveness will give way to amity, if the nervous arrangements for one are atrophied by disuse, and those for the other persistently exercised. The civilised man is distinguished by contracting the same delight in peaceful industry as the savage feels in war and the chase.

The two next chapters—"Egoism *versus* Altruism," and "Altruism *versus* Egoism"—are the most incisive in the whole book. The relation of Altruism to Egoism is subject to habitual exaggeration even to the extent of self-contradiction, and Mr. Spencer brings a rigid scrutiny to bear on the whole question. His position is—the permanent supremacy of egoism over altruism; and he elucidates this in his systematic way. He cites numerous striking examples to bring home the truth that the first condition of the performance of duty to others is the perfect vigour and competence of the agent's self. As a pertinent moral lecture, nothing could be more effective. He allows that his view is the one practically recognised among men, and only regrets that the nominally-accepted beliefs should be at variance with it.

In the chapter on Altruism, Mr. Spencer, by a review of the entire social situation of human beings, endeavours to assign the exact scope and value of our sympathetic regards. While avoiding all exaggeration, he proves, by numerous and striking examples, the value of altruistic conduct to all and to each. The dependence of egoism upon altruism tends ever towards universality, becoming greater as social evolution advances.

He next proceeds to consider the conflict of the two principles, which leads him a second time to discuss the Utilitarianism of Bentham and John Mill. He inquires what guidance the principle of "the greatest happiness of the greatest number" offers (1) to public policy and (2) to private action; and pronounces it defective as undertaking an impracticable operation, *viz.*, first to gather all the happiness of mankind into one stock, and then to apportion it properly among individuals. I doubt, however, whether either Bentham or Mill conceived the doctrine of Utility as necessitating any such operation. The essence and strength of the doctrine seem to me to be brought out by Bentham's two negatives of it—Asceticism and unreasoning Sentiment; to both of which Mr. Spencer is as much opposed as Bentham. The positive expression—the greatest happiness of the greatest number—is not itself happy, and was ultimately reduced by Bentham to the simple expression, "Greatest Happiness," which in its convenient vagueness seems to defy hostile criticism. How the greatest happiness of mankind is to be arrived at remains open for discussion. There is a general agreement at the present day that the best course is for each individual to occupy a limited sphere without thinking of the universal happiness. Mr. Spencer seems to me to be arguing for several pages without an opponent. The expressions that he quotes from Bentham and Mill need to be taken along with their whole system, which is, to my mind, not so very far from Mr. Spencer's own. They would say that Society should confine itself to protecting each man and woman in the pursuit of their own happiness in their own way. This is the text of Mill's *Liberty*. I admit that they are not able to prove beyond dispute, that the greatest Happiness will be attained in this form; but as far as the needful computation can be carried, they think it is in favour of such an arrangement.

The discussion has, at all events, been brought to the point of stating that Ethics is a regulated compromise between Egoism and Altruism. What remains is to consider the possibility of an ultimate conciliation. The position at present being that Egoism is too strong or Altruism too weak, the conciliation must work by finding some means of strengthening the altruistic promptings. Mr. Spencer sees in the tendencies of Evolution a progress in this direction. In an interesting dissertation on the sources of Sympathy, he endeavours to point out that the faculty admits of development in two ways, *viz.*, the natural language or expression of the feelings, and the susceptibility to that expression as witnessed. He expects such an increase in these two powers as to reverse the predominance of egoism, and to make altruism the prevalent fact of our constitution in minds generally, as it is at present in a few. There will then be as much competition in rendering services as there is at present in exacting them. Indeed, the difficulty will be to find scope for the altruistic cravings. The spheres finally remaining will be chiefly (1) family life, in which the care of children by parents and of parents by children will be better fulfilled, (2) social welfare, in the improvements of the social state, and (3) private relations, where the casualties of life will always afford occasion for help to the sufferers. "Far off as seems such a state, yet every one of the factors counted on to produce it may already be traced in operation among those of highest natures. What now in them is occasional and feeble, may be expected with further evolution to become habitual and strong; and what now characterises the exceptionally high may be expected eventually to characterise all. For that which the best human nature is capable of, is within the reach of human nature at large."

In a chapter entitled "Absolute and Relative Ethics," Mr. Spencer defines Absolute Ethics as formulating the normal conduct for an ideal society, such as we shall have in the future, and Relative Ethics as the science that interprets the phenomena of existing societies in their transitional states, labouring under the miseries of non-adaptation. The co-existence of a perfect man and imperfect society is impossible; and could the two co-exist, the resulting conduct would not furnish the ethical standard sought. Among people that are treacherous and without scruple, entire truthfulness and openness must bring ruin. "Hence it is manifest that we must consider the ideal man as existing in the ideal social state. On the evolution-hypothesis, the two presuppose one another; and only when they co-exist, can there exist that ideal conduct which Absolute Ethics has to formulate, and which Relative Ethics has to take as the standard by which to estimate divergencies from right, or degrees of wrong."

The final chapter—"The Scope of Ethics"—is the summary and outcome of the whole, and offers the easiest means of comparing the author's point of view with the prevailing theories. The Ethics of Personal Conduct is the best defined of all, from the requirements being so largely affiliated upon physical necessities. If this Ethics could be made perfectly definite, it would necessarily go a far way towards settling the Social Ethics, which is made up of individual interests, and has for its function the balancing of each against the rest. The first division of Social Ethics is Justice, which is the prime condition of co-operation. The final division is Beneficence, negative and positive, involving all those nice adjustments of egoism and altruism previously commented on.

While there are many questions of great interest propounded for debate in this highly original work, I must be content with adverting to what I gather to be the author's main position—the displacing of Utilitarian calculation or Empirical Hedonism by an Ethics of Evolution. Not that the acceptance of the Evolution-hypothesis is an essential preliminary; if it were so, a great many people would at once refuse a hearing to the whole speculation. The relationship of the physical and mental, taken as a matter of fact, is in reality the chief corner-stone of the whole erection.

Mr. Sidgwick, after stating the difficulties attending an Empirical Hedonism, as a means of investigating right and wrong, examined the various alternative methods "of determining what conduct will be attended with the greatest excess of pleasure and pain, so as to dispense with the continual reference to empirical results, which it has been found so difficult to estimate with accuracy". In Book II., chapter vi., of his *Methods of Ethics*, he took up Mr. Spencer's views as propounded in *Social Statics*. To this chapter, Mr. Spencer expressly replies in his "Criticisms and Explanations". The real reply, however, is the entire volume. We must peruse and assimilate the whole, before giving an opinion on the question as between Evolution and Empirical Hedonism. I had occasion to remark, in noticing Mr. Sidgwick's work (MIND, I., p. 185), that the hedonic or utilitarian calculation admits of being helped out by a variety of devices such as to mitigate the apparent hopelessness of the problem. Every suggestion of this nature should be welcomed and made the most of. Now Mr. Spencer re-casts the mode of propounding the problem, without altering its essential character as an inquiry into the best means of attaining happiness. But he does more than this. He provides certain new lights that were not possessed by the earliest theorists on the side of Utility.

The comparison with Empirical Hedonism is best taken in the Personal Ethics. It is admitted that a code of personal conduct can never be made entirely definite. "But ethical requirements may here be to such extent affiliated upon physical necessities, as to give them a partially-scientific authority. It is clear that between the expenditure of bodily substance in vital activities, and the taking in of materials from which this substance may be renewed, there is a direct relation. It is clear, too, that there is a direct relation between the wasting of tissue by effort, and the need for those cessations of effort during which repair may overtake waste. Nor is it less clear that between the rate of mortality and the rate of multiplication in any society, there is a relation such that the last must reach a certain level before it can balance the first, and prevent disappearance of the society. And it may be inferred that pursuits of other leading ends are, in like manner, determined by certain natural necessities, and from these derive their ethical sanctions. That it will ever be practicable to lay down precise rules for private conduct in conformity with such requirements, may be doubted. But the function of Absolute Ethics in relation to private conduct will have been discharged, when it has produced the warrant for its requirements as generally expressed; when it has shown the imperativeness of obedience to them; and when it has thus taught the need for deliberately considering whether the conduct fulfils them as well as may be."

Mr. Spencer's great advantage then consists in the primary and constant reference to the physical side of our being. For a very large part of our happiness, physical tests may be assigned; and the problem is transferred from the purely subjective estimates, which are so vague, to objective conditions which are comparatively well defined,—from the inward and spiritual grace to the outward and visible symbol. The author's antagonism is not towards the utilitarians as such, but towards the almost universal disregard of physical conditions by our forefathers. He is not the first to call attention to this great desideratum; but he makes a more thorough and systematic employment of it for the ends of happiness. Lord Shaftesbury said long ago that there were among us human creatures in such vile physical conditions that even religion was not possible to them. It would not be difficult to assign the lowest pitch of worldly means compatible with the fair requirements of a human being. The settlement of this point precedes all computations of pleasures and pains; or rather it is a short cut to the goal. The Utilitarian has more or less enjoyed the advantage, without being so fully aware of it as he might be; for he has not scrupled to use worldly abundance as a first rough test of well-being; and if the test were only rigorous and thorough, there would be nothing perplexing in the hedonistic calculation; it would be as simple as common arithmetic. Personal Ethics would be—Make a sufficient amount of money; Social Ethics—Do not defraud any one, and be ready, on suitable opportunity, to help those that are in need. The hedonistic difficulties begin where money gained and expended is not commensurate with happiness. Moralists in all ages (Aristotle perhaps excepted) have delighted to dwell upon the occasions where the two things are incommensurable. A better consideration of the human organism, supplying a better knowledge of physical conditions, explains many of the exceptions, and helps to re-instate the problem on a definite basis.

The best way to compare the two methods would be to try them upon some of the contested questions of life and society. Mr. Spencer incidentally overhauls a good many of the common-place usages and views, and rectifies them upon his principles. He shows the absurdity of men living and working all for the future, and depriving themselves of nearly every present indulgence. He earnestly inculcates the necessity of counting the present loss in the estimate of the future gain. This, it might be said, is merely empirical hedonism. So it is, with this addition, that loss of pleasure is loss of vitality; the question of pleasure and pain being now resolvable into the question—To be or not to be? Of course such a sweeping doctrine is to be held with certain qualifications and exceptions; and the point is—Can these qualifications be rendered definite? A rule with well-defined exceptions is practically universal.

Without assuming that Mr. Spencer has propounded a new doctrine, the antithesis of the doctrine of Utility, he may claim to have put forward a new point of view, in the working out of the doctrine; a point of view that does not admit of being re-argued, until it has been tried. Who shall say what amount of gradual transformation of ethical conceptions will follow from steadily regarding conduct under the lights that he has afforded? He will be a bold man that can treat the regard to the physical organism, its capacities and developments, as of no importance in the hedonic computation; and if it is of importance, Mr. Spencer shows the way to turn it to account.

The bright future of complete accommodation of man to his circumstances, brought about by Evolution, is cheerful to contemplate; and if it be a work of imagination, it is at least based on science. The Socialism that Mill would work out by a long course of education, is clenched, according to Mr. Spencer, by inherited modifications, and material guarantees. Our fervent wishes are with both.

A. Bain.

The Realistic Assumptions of Modern Science Examined. By THOMAS MARTIN HERBERT, M.A., late Professor of Philosophy and Church History in the Lancashire Independent College, Manchester. London: Macmillan, 1879. Pp. xi., 460.

The work of the late Professor Herbert, divided into three chapters, falls naturally into two parts, the first, critical and destructive, the second, expository and constructive. Chapter I., on the Dualistic view of Mind and Matter involved in Realism, and chapter II., on the Explanation of the Facts of Consciousness offered by Realism, make up the first, larger, and more important part of the volume. Chapter III. contains an exposition of the Idealist or Transcendental theory with application to various problems lying on the borderland between philosophy and theology, *e.g.*, the possibility of cognising the existence of God and of determining the Divine attributes.

The question treated in both parts of the volume is generally that of the relation between subject and object in knowledge or conscious experience, and more particularly that mode of the relation which is called in the technical phraseology of philosophers, *commercium corporis et animæ.* The author rightly apprehends that solution of this more special problem is impossible apart from consideration of the wider question, and he has little difficulty in showing that the peculiar explanations of it offered by scientific or philosophic writers involve some one or other of the various theories as to the nature of external things and the mode by which they are cognised. We are inclined to think that the course both of his criticism and of his exposition would have been facilitated had he at the outset indicated more sharply and formally the nature of those general theories from which follow the answers to the special problem to be discussed by him. It is plain that the principles on which his own procedure rests are those familiar in philosophy since the period of Kant, and were we to characterise briefly the purport and merit of Professor Herbert's work, we should describe it as a careful, thorough-going, and very able attempt to develop and apply the fundamental ideas of Kant's critique of rational psychology. The distinctions which supply foundations to his review of scientific attempts at explanation of the union between Soul and Body are throughout Kantian, though it may be observed that in the expository portion of his work he tends to identify the critical or transcendental idealism with the subjective or empirical idealism of Berkeley. Nor does he bring into sufficient prominence what is in many ways the most remarkable result of the critical method, the limitation and the grounds for the limitation of scientific notions (such as substance and cause) to the facts which make up the experience of a conscious intelligence.

The fundamental principle from which Mr. Herbert's examination starts may best be stated in the words of Kant. "I assert," says Kant, "that all the difficulties with which these questions (*i.e.*, community of Soul and Body, etc.) are supposed to be beset, rest on a mere delusion, by which what exists only in our thoughts is hypostatised and is regarded as having an existence with the very same qualification (or determination) beyond the thinking subject ; *e.g.*, extension, which is only a phenomenon, is regarded as a quality of external things in independence of our sensibility, and motion is regarded as the action of these things, also existing in itself beyond our senses." In other words, phenomena which are only for intelligence are taken to be things-in-themselves existing *beyond* experience, so constituted as they are found to be *in* experience, and giving rise by their action to those very modifications of sensibility which in common life and science are called phenomena. This abstraction from the necessary conditions of phenomena is the origin of the view called by Kant Transcendental Realism and criticised by Mr. Herbert as Realistic. (*Cf.* pp. 3-6, 99-102, 146-8, 169-70.)

It follows as an immediate consequence from this Realistic conception that a sharp distinction must be drawn between things and the sentient subject whose consciousness receives its filling-in from these things. The soul or intelligence is viewed as one thing among others, as one of the substances which standing in reciprocal relation compose the mechanical unity of the world. And the mode by which these substances communicate is thought by means of the notions appropriate to mechanism, vibrations of external environment, vibrations of neuroplasm (nervous tremors) and similar vibrations of 'psychoplasm' (nascent or rudimentary sensations). (*Cf.* pp. 23, 32, 62-6, 78-80.) Hardly has such a view been formulated than it becomes apparent that for a consciousness so formed by the operation of external things no cognition of such external things is at all possible. The subject is absolutely confined to the successive states produced *ab extra* and composing its very substance. Thus a transcendental realist, as Kant points out, is the very man to turn empirical idealist, and to affirm in the same breath that states of consciousness are produced by external things, and that the existence of such things is absolutely unknown, our knowledge being of necessity limited to states of consciousness. (See Huxley's *Hume*, pp. 78, 80, 81.) If such a thinker be gifted with logical consistency he then proceeds to affirm that the things to the operation of which all the contents of consciousness have been assigned are incognisable, for us non-existent, and that the ultimate reference of all we know must be to a substratum of existence alike unknown and unknowable. Lange, Huxley, and Spencer furnish the best illustrations of this line of thought. It is evident, however, that the conclusion reached and the premisses from which it is drawn have nothing in common, and that the inference is made by assigning a double signification to the 'things' in question. The 'things' referred to in the first instance, the motions or whatever they may be, and thought as the causes of internal states, as determining the connexions among the elements of conscious life, are the things so constituted as they appear in our experience, not the unknown, the existence and connexions of which may in no way resemble our experience or conceptions. Only by passing from the things as facts of experience to the things as giving rise *to* experience do we make the transition from scientific to 'transfigured' Realism.

The Realistic assumption, then, may be examined from two points of view. We may, in the first place, investigate the inner consistency of the development from the conception of subject and object (or, say, *psychosis* and *neurosis*) as things forming parts of the same order of experience and with mutual action and reaction. In this case the notions employed by way of explanation, cause, action, force, are those applicable to express the relations of phenomena within experience, and we may expect to find difficulties and contradictions when they are employed to explain experience itself. Or we may, in the second place, examine whether on the Realist assumption any explanation whatever could be given of the distinct factors, subject and object, involved in conscious experience. In both cases we apply a method of criticism familiar to all students of the Kantian and post-Kantian philosophy; we make manifest the incompleteness of a principle by exhibiting the contradictions to which it infallibly leads. (*Cf.* pp. 300, 340, 378.) The contradictions, so far as Realism is concerned, arise from taking as ground of general explanation that which has only partial validity. The two inquiries just referred to correspond fairly to the matter of Mr. Herbert's first and second chapters respectively.

Just as the fundamental idea of Realism, that of correlating Mind and Body and treating them as substances acting and reacting under the general laws of activity, corresponds to the pre-critical mode of contemplating the problem, so the most surprising similarity is to be found between the various pre-critical explanations of the relation between Soul and Body and those put forward by modern science. The parallelism between the theories successively evolved in the Cartesian philosophy and the modern views classified in Mr. Herbert's first chapter, though not adverted to by the author himself, is so exact as to call for special notice. In Descartes himself we find the clear opposition between the self-conscious ego and a physical nature which is mechanically complete, just as in modern science psychical states are viewed as somehow coexisting with a physical universe complete and constant in its mechanical energy. Descartes' confused and contradictory assertion of a power in mind, not to affect the quantum of motion in the universe (which is fixed), but to alter the direction of motion, is exactly paralleled by Dr. Carpenter's view of volition governing the distribution of energy as a rider governs his horse. The same criticism is applicable to both. If physical and psychical be distinct entities, any causal relation between them must violate the scientific principle of continuity in the physical universe. (*Cf.* pp. 28-32, 35-7, 43, 57-8.) In Cartesianism the pressure of this difficulty led to the more definite formulation of the theory of Occasional Causes, according to which, as Prof. Clifford puts it, 'the physical facts go along by themselves and the mental facts go along by themselves'. We become, as Geulincx said, 'mere spectators in the universe'. 'Quemadmodum non operamur in id quod extra est, ita quod extra est non operatur in nos.' Consciousness is thus an accidental concomitant of physical processes; it is, indeed, a superfluous addition to the 'sum of existence'. That logical consistency leads to the further step of postulating some kind of pre-established harmony between psychical and physical is historically known and is well brought out by Mr. Herbert (pp. 59-66). Any such harmony, however, with the doubtful exception of the Leibnitzian, requires the employment of the conception of action, and entails all the perplexities incident to that notion. Even the finest form of Occasionalism, that of Lotze, in which mental states are regarded as the specific modes of the reaction of the soul or immaterial monad in conformity to certain signals or signs, leaves absolutely unexplained the nature of the connexion between the soul and the physical change which affects it as a signal. Wherever we find postulated an absolute distinction between mechanism and conscious experience, or between the forms of our experience and reality, the same insuperable difficulties arise.

There remained for the pre-critical philosophy as for modern scientific explanation only the view that ultimately soul and body, psychical and mental, are one; both are modes, or, in more recent phraseology, manifestations, appearances, faces, of the one, unique reality. Sometimes this theory is taken to mean that the two facts are phenomenally distinct, but united in the unknown substratum, in which case manifestly the whole difficulty is shelved (pp. 87-8). Or it may mean that in truth each part of experience is twofold, subjective and objective. How impossible it is to carry through this conception we know historically in the case of Spinoza. How certainly we are led to regard some of the facts of experience as one-sided, others only as two-sided, is well brought out in Mr. Herbert's quotations from Prof. Bain and Mr. Spencer (pp. 66-72). "In fact, Mr. Hodgson, Mr. Herbert Spencer, and all who hold this theory, do not, cannot allow to the united process they describe, all the varied and incompatible qualities of its two aspects. They speak of the connexion as if it were a union on equal terms, but when they apply the theory, it turns out to be far from that. We are told that nerve-changes have mental aspects, but everything is effected solely by their physical characters; the mental aspect does not influence events. We are never told that, though our feelings have physical aspects, our actions are governed by laws of mind; though if the union in question were an equal one, the latter statement would be as fair as the former and philosophically it is more accurate. . . . The united process is such that the mental aspect is, for all purposes of action, wholly subordinate to the physical" (p. 197).

The result, then, with which this section of Mr. Herbert's work concludes is that the Realist view, by the contradictions to which it leads, manifests its incompleteness as an explanation of experience. So far as phenomena are concerned, we are and must be realist, but when the sephenomena are thought to exist as things-in-themselves, giving rise to experience, then we are involved in contradictions. The facts of mental experience to which physical occurrences are supposed to give rise are themselves the physical phenomena. If we resolutely restrict our attention to phenomena viewed as external, and deal with them as substances or things acting and reacting, then at no point in our investigation do we come upon any mental fact; nor is it necessary we should do so (p. 146). It is only if we treat these external phenomena as *causes* of our experience, that we find the absolute impossibility of reconciling external fact and inner states.

In his second chapter, Mr. Herbert deals with what is truly the fundamental perplexity of the Realist view. The mode in which our experience of external facts is thought to originate, by action of things upon the organs of sense, at once demonstrates that of these external facts, so conceived, we can have no knowledge. "If it (*sc.* the material world) exists as we perceive it, it follows that we cannot perceive it." (p. 163.) Several sections (pp. 149-184) are devoted to consideration of the various ways in which the process of perception has been explained, and with perhaps more elaboration than is necessary it is shown that the conception of a mechanical relation between external things, the organism and mind, lands us in hopeless contradiction. Pushing his argument further, Mr. Herbert points out that in the scientific (realistic) conception of the world no place can be found for any exercise of intelligence, human or divine, that the reasoned connexion of facts in our mental life is not to be accounted for by reference to any of the mechanical relations of nervous energy which are supposed to underlie these facts, that certain fundamental features of our intellectual life (memory, identity of self) are inexplicable if we regard such life as the result of material action and reaction, and finally that the Realist interpretations of space, time, and motion lead to antinomy.

At various points throughout this chapter, Mr. Herbert uses forms of expression only compatible with the individual or empirical idealism of Berkeley. In particular, he refers to our representation of space-quanta as not being themselves extended, to our conception of time as not corresponding to real time, and to the objective character of certain feelings as an inference from something known of Self. This method of distinguishing between conception and fact is valid as against Realism, but leads to some confusion in the author's argument. When we say that our perceptions of extended facts are extended, there is no contradiction unless we introduce surreptitiously the very separation Mr. Herbert so justly rejects, between our experience and that which we experience. Whoever pronounces dogmatically, as even Lotze, with all his caution, invariably does, that our representation of space has nothing spatial in it, that our representation of movement does not in the least resemble movement, implicitly asserts the existence of an unknown and unknowable space and movement, which in some occult fashion are so far known as to admit of being compared with our experience of them. The apparently absurd conclusions to which Czolbe and Ueberweg were led by a quite similar train of thought regarding perceptions of space, depended on their view of space as something in itself, apart from and to be distinguished from experience.

With the expository portions of Mr. Herbert's work we find ourselves less in harmony than with his criticism. When he comes to explain more formally the conception of Idealism on which his previous remarks have been founded, it is apparent that he wavers between the empirical or individualist doctrine of Berkeley, and the critical or transcendental theory of Kant. He speaks of knowledge as being limited to "phenomena of consciousness and inferences" to be drawn from them (p. 353). These inferences, which transcend phenomena and without which, as Mr. Herbert puts it, rational continuity of mental life is impossible, or, as we should prefer to put it, cognition of phenomena is impossible, are described as irresistible suggestions, and among them are included the permanence of self and the externality of the perceived world. It is not easy to discover what Mr. Herbert understands by this externality of the perceived world. He appears to claim, like Berkeley, an original, primitive demand of intelligence for efficient causation, then asserts that phenomena are *effects* not explicable by other phenomena, and forthwith proceeds to draw the "irresistible conclusion" of an external power. The idea of this power must be associated with certain phenomena, otherwise they could not be recognised as *external*. (*Cf.* pp. 348, 369-70, 431, 448.) A closer analysis would show that this method of proof is neither requisite nor adequate. How the externality of the perceived world, which must be for Mr. Herbert the arrangement of certain states in space, is connected with the suggested "power," nowhere becomes evident. Equally unsatisfactory is the account given of the "suggested" permanence of self. Mr. Herbert is still entangled in the difficulty that the Ego does not present itself as a phenomenon among other facts of experience. On this ground he appears to think that permanence of the Ego is an inference, that this inference is phenomenal, and, consequently, in order to transcend phenomena, recourse must be had to belief or intuitive conviction. (*Cf.* pp. 371, 372-3, 380, 402.) The only fact which, he appears to say, can be regarded as demonstrable, is the existence of present feeling. He would find it hard to show that such existence is under any circumstances demonstrable, or even cognisable apart from thought, which alone truly transcends phenomena. But the word 'phenomenon' seems to have exercised its usual fascination.

On the special matters contained in this third chapter, such as the criticism of negative theology, we have left ourselves no space to comment. It may be permitted, in concluding, to say that Mr. Herbert's work appears to us one of real ability and importance. The author has shown himself well trained in philosophical literature, and possessed of high critical and speculative powers. The rare merit of the solitary work which he has been spared to complete, deepens our regret for the untimely death of one who gave every promise of making valuable contributions to British philosophy.

ROBERT ADAMSON.

A Defence of Philosophic Doubt, being an Essay on the Foundations of Belief. By ARTHUR JAMES BALFOUR, M.A., M.P. London: Macmillan, 1879. Pp. 355.

Mr. Balfour's book contains a criticism of modern philosophy from a sceptical point of view. It should, however, be understood that his scepticism is not of that ingenious and suicidal kind which necessarily ends in self-destruction. He has not set himself to maintain the paradox that Reason judged by itself is irrational, nor even to prove that there cannot be a Philosophy which will satisfy all our fair demands. He merely asserts that the philosophies most popular at the present time are thoroughly unsatisfactory. Now this is no paradox, and the unphilosophical might even think it a commonplace. But the unphilosophical will hardly be satisfied with Mr. Balfour's argument however much they may be pleased with his conclusions. Nor indeed can his conclusions be pleaded in favour of nescience and laziness, for, as already said, he seeks not to demonstrate the impossibility of Philosophy, but merely to show that we have small reason for being satisfied with the theories which pass current amongst us.

It seems to me that a book which should sum up the case against Modern Philosophy was much wanted and that Mr. Balfour has well supplied the want. In the first place he has a very clear idea of what he requires of a sound philosophy. With this before him he has examined various theories. Keeping his object in sight he refuses to be led away by what he thinks false issues and insists on extorting an answer to just those questions which he holds of supreme philosophic importance. The scope of his book should be had in mind if we are inclined to condemn him for not dealing with the whole of those systems which he pronounces unsatisfactory. A disciple of Kant, for instance, may think his treatment of Transcendentalism shallow and one-sided. But Mr. Balfour has only two or three questions to put to Kant, and the only real issues are whether these questions are of first-rate importance and whether Kant has answered them. Whatever may be thought of the substance of his argument, there can scarcely be two opinions as to its style. It is clear, forcible, and concise. The reasoning may be aimed at a wrong mark, but there can be no doubt as to what is the mark at which it is aimed.

This book will probably hereafter be often mentioned in this journal, for it seriously concerns our philosophers that its author should not be left in possession of his chosen field. The present notice attempts nothing more than to give a brief and meagre outline of the course which he pursues.

Of our beliefs some rest on inference; we can give reasons for them. But unless we are committed to an infinite regress, this cannot be the case with all our beliefs. Some of them must be logically ultimate. Mr. Balfour more than once and very rightly insists on the distinction between logical ultimateness and psychological primitiveness. His inquiry is not psychological. With the *causes* of belief he has nothing to do. The *grounds* or *reasons* of belief are his subject. Philosophy is bound to give an account, if possible a classification, of our ultimate beliefs, those which are our reasons in the last resort. In search of such an account he examines various theories.

But there are two beliefs with which he is specially concerned, our belief in the uniformity of nature, and our belief in a permanent world external to and independent of consciousness, or at least *our* consciousness. The first is admittedly of vast importance to science, and according to Mr. Balfour the second is so too. This he argues against Mill. Idealism, that is, individualistic Idealism, can make nothing of Science. The idealist cannot translate into the terms of his theory the assertions which Science makes about a world which existed unperceived and unperceiving for ages before the first perceiving organism was evolved. Here Mr. Balfour is able to call Mr. Spencer as a witness in his favour.

In his examination of various systems he keeps these objects steadily in view :—Philosophy must give us a coherent account of our ultimate beliefs ; Philosophy, if it is to justify Science, must assure us of the uniformity of nature and the existence of a world apart from our consciousness. He first attacks Mill's treatment of the uniformity of nature, and argues that the reasoning is circular, the question begged. The uniformity of nature is already assumed in the distinction between the power of the Method of Agreement to prove this supreme law, and its impotence to prove any other law. But this is not all, for neither Mill nor those more cautious inductive logicians who avoid the difficulty by treating the uniformity of nature as an ultimate belief, can tell us what they mean by *uniformity*. When they strive to be precise they give us the sterile assertion that the same total sum of antecedents will always be followed by the same total sum of consequents. If they attempt more they afford us but some vague rules for the conduct of scientific inquiries and in the end leave us to our practical good sense. It will be noticed that Mr. Balfour does not merely treat the statement of natural uniformity as unproved ; this would be little, for some beliefs must be unproved ; he argues that it is never thrown into any accurate form except at the expense of making it unmeaning. It is to be hoped that some who have the uniformity of nature for ever on their lips will be able to prove that this reproach is unfounded.

Mr. Balfour's chapter on Transcendentalism has already appeared in these pages (No. XII.), with a reply to it by Professor Caird (No. XIII.). Readers of MIND have therefore the materials necessary for a judgment on the merits of the case. But Mr. Balfour's position will be better understood when this chapter is read as a part of his book. Kant, it is said, has saved for us the law of causation and the existence of a world such as Science requires. Is this so? No, says our author, we cannot find that the trustworthiness of these scientific beliefs is involved in our perception of objects and events succeeding each other in time. Besides Kant does not any more than Mill state in precise terms that law of causation which is required by the man of science.

From Kant we descend to popular philosophy with its arguments from general consent, success in practice and "common sense". Thence we pass to Hamilton's version of "the testimony of consciousness," and Mr. Spencer's Universal Postulate. In each case the object sought for is the same, an ultimate belief which is clear and precise. Popular philosophy, as may be imagined, is unsatisfactory to Mr. Balfour, and he points out its tendency to assert that a belief is ultimate and then to give reasons for it, a tendency to which Hamilton was subject. His argument against Mr. Spencer is hardly so convincing as the rest of his book. In Mr. Spencer he finds a philosopher who chooses his ultimate belief and is consistent in his choice, and who has thus placed himself beyond the reach of Mr. Balfour's most effective weapon, namely, the proof that his opponent argues in a circle. He is more successful in criticising Mr. Spencer's Transfigured Realism. He agrees with his adversary that the world must be saved if Evolution is to be other than a dream, but he does not think that his adversary has saved it.

Then follow some interesting and ingenious chapters tending to show the discrepancies between Science and Common Sense. The world as conceived by Science, argues Mr. Balfour, is not the world as perceived by us. The causes of our perception of colour as conceived by Science are not these coloured objects which we perceive. How comes it that Science conflicts with perception? What warrant has Science other than those very appearances which it contradicts? So again with theories as to the origin of beliefs; these also tend to overturn the support on which they rest. The belief in Evolution is evolved like any other belief; it may like any other belief have been produced by causes which are not reasons; by showing how beliefs may be produced by such causes it throws doubt upon its own validity.

Thus weighing various theories against those requirements with which he started, Mr. Balfour brings us to his practical results. And his chief practical conclusion is, that no satisfactory justification of scientific assumptions and scientific procedure is to be found in our fashionable philosophies.

It is perhaps to be regretted that in his last chapter our author thinks it well to speak of the conflict between Science and Theology. It is not to be regretted that he should protest against the overbearing dogmatism of certain assailants of Theology, and this gives him an opportunity for an amusing parody of the lectures on their irrationality which are constantly addressed to theologians. But Mr. Balfour by setting Science and Theology over against each other as the two opposing systems which divide the allegiance of mankind is led, as it seems to me, to underrate the destructive force of his previous argument. He suggests that though Science and Theology may be each indefensible as a whole, each may be reasonable in its "internal structure," that is, I take it, that granted certain assumptions we may have a reasonable Science and a reasonable Theology, though the two cannot stand together. But has Mr. Balfour left us the power to make the necessary assumptions? He has shown that Science (and it will hardly be said that Theology is in better plight) is not only compelled to take certain beliefs as ultimate and unproved, but is at present compelled to adopt beliefs which elude all attempts to express them with precision. Such at any rate is the case with the belief in universal causation. When therefore he tells us that Science and Theology are bound to make themselves internally reasonable, by *reasonable* he can hardly mean more than *consistent*. How, unless he has some undisclosed system in the background, he would proceed to make his Science or his Theology reasonable, I cannot guess. He has apparently left us with no guide to truth save deductive logic and certain "impulses". But deductive logic will avail us little in a choice between Polytheism and Monotheism, or even in a choice between Protestantism and Catholicism. It seems to me that his "Practical Results" are on his own premisses premature, and the hope that he holds out of a Science rational in itself and a Theology rational in itself delusive. Had he fully appreciated the havoc which his criticism must make within each department of human knowledge, he might have come to a conclusion less satisfactory to the unphilosophical but more valuable as a foundation for a new construction. For instance, he might have been led to doubt whether we are right in trusting to inconsistency as a conclusive test of falsehood. If we cannot arrange our scientific beliefs in a logical order, and determine which are ultimate, which inferred, this may be due to no fault in our science but to our insisting that science should conform to a model which is itself unreasonable.

But few of his readers will condemn Mr. Balfour for not having doubted sufficiently, and there is much to be considered in his previous argument before we need think of his "Practical Results". To me it seems that his criticism, whether valid or no, is legitimate and salutary. There is a constant danger that discussions which begin by being *philosophical* (in Mr. Balfour's sense of the word) should end by being psychological, and against this tendency Mr. Balfour strives successfully. An investigation of the reasons for belief is quite a different matter from an investigation of the causes of belief and may be of much greater importance. Considering the common confusion of these two matters, Mr. Balfour will have done an important service to Philosophy if he succeeds in forcing on others his own clear distinction. Perhaps he will make but few converts to his own peculiar form of scepticism, but the disciple of Mill will see the force of his argument against the Transcendentalists, the Transcendentalist will praise his attack on Mr. Spencer, and all will admit that he is entitled to a respectful hearing. Such a hearing he will doubtless obtain from many readers of MIND.

F. W. MAITLAND.

Principles of the Algebra of Logic, with Examples. By Alexander Macfarlane, M.A., D.Sc. (Edin.), F.R.S.E. Edinburgh: Douglas, 1879.

All who have any taste for the study of Symbolic Logic will be interested in reading Mr. Macfarlane's very thoughtful and suggestive essay. It is avowedly written on the lines of Boole, though he differs freely on various points, more or less of detail, from that great originator of the subject. Some of them are points in which it seems to me that he has rather narrowed Boole's view—I mean that he has criticised him on the supposition of his view being less sound and general than I should regard it as being; though in the case of such a writer difference of interpretation is almost inevitable. For instance he regards the compound class term xyz as necessarily implying that it must be interpreted along the predicamental line, that is, that we must take x, y, z, respectively in order, selecting first the things in general that are x, then from this selection those that are y, and so on. For myself, I have never understood Boole to mean more than that this is an easy explanatory mode of getting at such a compound symbol. But xyz itself I regard as being simply the class which happens to possess those three attributes, however we may have arrived at them. Again, in discussing the meaning of the 'Universe' to which our reference and discourse are limited in any particular case, he supposes Boole to have intended "a definite part of the whole realm of things—a limited portion of the physical universe, with all the entities which are or can be imagined to be in it, whether mental or physical," &c. That we may so interpret our universe if we please is quite certain, but I have never seen anything in Boole to hinder us from taking the much more reasonable interpretation which would merely restrict the universe to any order of things or phenomena of which we might wish to take account. If that universe is 'men,' say the men in a given room, then 'not-men' will not stand for the indefinitely numerous entities of other kinds which logic may consent to take account of, but will be = 0. This is the view which I understand Mr. Macfarlane himself to take.

There are other points on which I should agree with his criticism, for instance, in reference to that rather perplexing distinction between primary and secondary propositions, which plays so large an apparent part in Boole's system, but of which the practical importance so soon dwindles down, owing to his admission that the symbolic laws which govern them are identical, and that any primary proposition can always be expressed as a secondary. This distinction, with its rather far-fetched application that the latter kind of proposition is best regarded as having its interpretation in time and the former in space, I understand Mr. Macfarlane to reject, in which rejection I should quite concur.

The general aspect of the volume will, I fear, be rather deterrent to the bulk of logicians, for to a hasty glance it appears to be even more of a mathematical treatise than that of Boole, by which I mean that there are even fewer pages in it of type unbroken by the intrusion of

x and y, of $+$ and $-$, &c. But those who read it will find many remarks which will be suggestive to the ordinary logician, as well as to those who wish to follow up the intricacies of the symbolic development. For instance, in reference to the conversion and contraposition of propositions, he points out that, owing to the neglect of taking into account the 'universe' of discourse, many writers have failed to give a perfectly accurate account of the process. They will regard the proposition, 'Every regular figure may be inscribed in a circle,' as convertible into 'Every figure which cannot be inscribed in a circle is not regular'. Whereas they thus leave 'figure,' the subject of thought, unchanged, manipulating only the characters 'regular' and 'inscribable in a circle'.

Those who have exercised themselves with these symbolic methods will know that the due representation of particular propositions is a decided vexation and trouble, and I could wish that Mr. Macfarlane had entered more fully into the discussion of them. Few will be satisfied with Boole's $vx = vy$, or Prof. Jevons's equivalent form $AB = AC$, to express the particular affirmative. It seems to me that Mr. Macfarlane is on a decidedly better track in adopting the form $xy = v$. This form is simpler and more symmetrical, especially when we have to take account of more than two terms. But I think there must be an oversight in his distinction (on p. 71) between $xy = v$ being a particular affirmative, and $xy = 1 - v$ a particular negative; for v being simply a class between 1 and 0, there is no logical distinction between v and $1 - v$. I would prefer to write them $xy = v$ and $x(1 - y) = v$, these asserting respectively that there are x's which are y, and that there are x's which are not y. I offer this as a hint merely at present; the subject is too intricate to pursue at length in a brief notice like this.

The principal feature of originality in the volume seems to me to lie in the numerical treatment of logical questions. Something of course had been done here by De Morgan, but I do not know that it has been systematically treated elsewhere. The reader unacquainted with these questions will best comprehend their nature by the statement of a simple problem. "Suppose that of the persons on board a ship which was wrecked, the passengers formed two-thirds; and those that were saved in the wreck three-fourths. How many passengers must have been saved, how many lost; how many of the crew must have been saved, how many lost?" (P. 76.) Of course this could be worked out without the necessity of appealing to a special logical calculus, as, for that matter, there are doubtless ready-reckoners who could answer it off-hand without conscious appeal to arithmetical rules. But readers of a speculative journal will hardly need to have a formal defence offered for the reduction to rule and principle of processes which in simple cases can be carried on by the untrained faculties of ordinary intelligent persons.

Mr. Macfarlane takes as the types of the Categorical and Hypothetical propositions respectively, $x = m$, and $xy = m$. This is one step towards abolishing the latter, and I cannot but think that it would be better to take the slight remaining step. Not of course that propositions with a hypothesis in them should be rejected, but that the hypothetical element itself may be neglected as extralogical. The subject is too large for discussion in a side-reference, but, in the fewest words, it seems to me that the reason why the two types that Mr. Macfarlane has taken will answer the purpose as well as they do, is this:—When I say 'x is m' the existence of x and m, though not asserted, is strongly implied, so that the hypothetical element in their existence is not obtruded on our notice. But when I combine two distinct class terms, x and y, which have no connexion perhaps with one another, into the proposition 'xy is m,' the question at once arises, 'But is there any xy?' This element of uncertainty we take into account by using some such terms as 'x if it is y,' 'x when y,' &c. But, at bottom, it seems to me that that element is invariably present in all propositions, and need not therefore be specially taken account of in any.

There is a good selection of Examples at the end of the volume, very well calculated to show the scope and power of these symbolic methods. Those who have to teach or study the subject will be glad of these, as well selected examples are not to be found easy at hand.

J. VENN.

La Morale d' Épicure et ses Rapports avec les Doctrines contemporaines. Par M. GUYAU. Paris: Germer Baillière, 1878.

M. Guyau's work is an enlarged edition of the first part of an essay on "La Morale Utilitaire," to which a prize was awarded in 1874 by the Académie des Sciences Morales et Politiques. His view of Epicureanism is not, in the main, quite so novel as the reporter of the Académie seems to have supposed; but his book may be cordially recommended to students of ancient philosophy as containing not only the most ample and appreciative, but also—in spite of some errors and exaggerations—the most careful and penetrating, account of the ethical system of Epicurus.

Such a book is all the more welcome, because the treatment of Epicureanism in the most widely accepted history of Greek philosophy—Zeller's—constitutes one of the least satisfactory parts of that valuable work. Here, as elsewhere, Zeller is uniformly impartial in intention and trustworthy in details; but his want of sympathy with the general view of Epicurus has prevented him from apprehending the real significance and inner coherence of some of the Epicurean doctrines, and in other cases has led him involuntarily to depreciate their originality and importance. Thus he fails to make his reader understand the ardour of enthusiasm which Epicureanism excited in minds like Lucretius, and its prolonged and inflexible vitality—all the more remarkable as contrasting with the brief and unstable existence of the earlier and more naïve hedonism of the Cyrenaics. The fact is that Zeller with other historians has missed the right point of view for tracing the process of Greek philosophic thought after the turn given to it by Socrates. Their attention is always primarily directed to the development of speculative philosophy; ethics is always dragged in the wake of metaphysics; whereas the post-Socratic philosophy itself was throughout in its first intention practical, a pursuit of wisdom for the sake of life. It is very natural for students of Plato and Aristotle to forget this; indeed my assertion may easily seem paradoxical, when we contemplate the absorbing profundities of Plato's metaphysical research, and the small place that the theory of practice occupies in the vast range of Aristotle's thought. Still the paradox is merely apparent. Plato never ceased to hold that the only true and reasoned answer to the fundamental question of practice had to be supplied by ontology; and though in Aristotle's view speculative philosophy did not, in one sense, give the answer to this question, being concerned with higher things, yet in another sense it did: it was not the theory of the true end of human existence, but it was the end itself. Hence we ought not to regard the preponderance of the practical interest in the post-Aristotelian school as a mere indication of the decay of genuine philosophy—which seems to be Zeller's view—but rather as a return, after a splendid digression, and reconcentration of philosophic thought on what, since Socrates, had always been regarded as its main problem.

From this point of view the peculiar historical importance of Epicureanism is easily seen. Greek ethics, as more than one writer has noticed, was throughout egoistic in form, at least so far as the statement of its fundamental question is concerned; but Epicureanism alone among the great rival systems supplied a content obviously and completely adapted to this form. When Socrates started the search for The Good, he meant primarily "good for himself" or for any other individual philosophic soul inquiring after the true way of life; but, from his original and epoch-making conception of the nature of knowledge, he inevitably failed to distinguish this inquiry from the investigation of abstract or absolute good: hence his search led naturally to that blending of ethics, physics, logic and theology in one dream of a supreme universal science, which we call Platonic Idealism. Again, though Aristotle's analysis definitely distinguished the end of ethical investigation as the individual's wellbeing, his conception of this end was powerfully influenced by the organic or teleological view of the physical universe which he inherited and developed; while in determining the particulars of practical good his ultimate appeal is not really to the individual's experience, but to the common moral consciousness of the society of which he is a member. In Epicureanism we have for the first time ethical egoism purged of all alien elements, and supported by a physical doctrine purged of all teleology.

I have referred briefly to these historical generalities because, while agreeing with M. Guyau as to the degree of importance to be attached to Epicureanism, I am by no means able to accept his view of its historical relations. Indeed I am bound to say that many of his references to other philosophic systems seem to me characterised by a superficiality very strange in a writer so careful and penetrating. For instance, his first chapter opens with the following historical sketch :—

> "On le sait, les peuples qui commencent à philosopher font presque toujours de la spéculation pure ; ils pensent, ils cherchent pour penser et pour chercher ; plus tard seulement, quand les philosophes s'aperçoivent qu'ils ont cherché pendant fort longtemps pour trouver fort peu et qu'ils sont en désaccord les uns avec les autres, ils finissent par s'inquiéter, ils craignent d'avoir perdu leur peine : les sceptiques, les Pyrrhon, en voyant leur impuissance et leurs contradictions rient et raillent, mais les utilitaires, plus sérieux, au lieu de condamner l'esprit humain, condamnent la spéculation, ramènent la pensée vers le *moi*, prétendent qu' avant de poursuivre la vérité absolue, il faut chercher la vérité relative et l'utilité, et qui plus est la trouver. Ainsi fit Épicure en Grèce ; on peut considérer son système comme une tentative pour arracher l'esprit humain aux écarts des Héraclite, des Platon et des Aristote, en un mot pour régler la pensée humaine sur l'utilité."

An account of the transition from pure speculation to the study of "le moi" and "l'utilité," in which the very name of Socrates is left out, is certainly more original than satisfactory ! Nor is it easy to understand how any one who has read Aristotle's *Ethics* can go on to inform his readers that "Platon *et Aristote* cherchaient le vrai pour en déduire le bien". On Stoicism M. Guyau—who has published a translation of Epictetus and an *Étude sur la philosophie d'Epictéte*—is naturally better informed. Still, he hardly ought to assert, on the strength of a single passage of Epictetus and against a *consensus* of other authorities, that "les Stoiciens conseillaient à leur sage d'éviter le mariage". Again, it is misleading to say that the Epicurean doctrine of political abstention was shared by a majority of Stoics, without also explaining that the Stoics always maintained as a theoretical principle that the sage should take part in public affairs unless there were good reasons to the contrary. Withdrawal from political activity was a part of the Epicurean ideal of life, while it was forced on the Stoic by the discrepancy between the ideal and the actual conditions of political existence : the difference in theory is of fundamental importance.

On the other hand, so far as M. Guyau treats of matter that he has especially studied, he is almost uniformly instructive as well as trustworthy. For instance, his comparison between the hedonism of Aristippus that pursued the pleasure of the moment, and the "utilitarianism" of Epicurus, whose end was the happiness of a life, is thoroughly careful and well-informed. I think, however, that in this comparison he, to some extent, confounds two distinct issues; one really practical, while the other is merely metaphysical, or, if I may coin a word—*metapractical*. When the Cyrenaics, as Diogenes Laertius tells us, maintained that the τέλος was not εὐδαιμονία but ἡ κατὰ μέρος ἡδονή, they did not necessarily adopt the paradoxical position of denying that future pleasure, so far as it is capable of being foreseen, is to be regarded as much as present pleasure : indeed, as Diogenes goes on to say, they allowed that εὐδαιμονία was αἱρετή, though not *per se* but as a means to the particular pleasures. That is, they admitted it to be practically reasonable for a man to aim at making the sum of his future pleasures a maximum: they only laid stress on the fact that the hedonistic end is not capable of being actually realised except in successive parts. At the same time the scepticism of the Cryenaics would naturally lead to an exaggeration of the uncertainty of the future, and to a practical adoption of the principle "carpe diem": and in fact Athenaeus and Ælian attribute this principle in its extremest form to Aristippus, and all that we are told of his life is in harmony with their statement.[1] While, on the other side, it is in direct contradiction of Epicurus's express statements to say that his "fin" is "le bonheur, *non le plaisir*" (p. 130): indeed, the success of Epicureanism may be attributed to the fact that it started with frankly accepting the vulgarest pleasure-seeking as reasonable and right, though it ended by constructing an ideal life as remote from the voluptuary's practice as Stoicism itself was—a life, as Jerome exclaims with admiring surprise, "full of herbs and fruits and abstinences".

M. Guyau traces clearly and skilfully the process by which the stable and perfect edifice of philosophic happiness is raised by Epicurus on the apparently shifting and unstable basis of sensual gratification; and in so doing corrects more than one widespread error. He lays stress on the positive quality of the *καταστηματικὴ ἡδονὴ* which Epicurus contrasted with that *ἐν κινήσει* and maintained to reach the highest degree of which pleasure admits: this being not mere painlessness, but the stable satisfaction derived from the mere sense of normal life, unruffled by pain or anxiety. In connexion with this he ingeniously and perhaps rightly interprets the well-known utterance that "the pleasure of the belly is source and root of all good," not as exalting the pleasures of the table, but as emphasising the importance of satisfying the bodily needs of nutrition. At the same time M. Guyau goes too far in calling this *καταστηματική ἡδονὴ* "le seul vrai plaisir" and speaking of the "plaisirs inférieurs du mouvement" as being "rejected" by Epicurus. It is not easy to make Epicurus's utterances on this point perfectly consistent; but I think he must be understood not to "reject" the *ἐν κινήσει ἡδοναί*, nor even to treat them as inferior; rather, he would co-ordinate and as far as possible combine them under one notion with the stable satisfaction that lies in the feeling of settled and serene existence.

No feature of Epicureanism is more striking than its triumphant announcement of the perfect attainability of its ideal. The Epicurean sage, no less than the Stoic, enjoys a happiness that could not be increased by the prolongation of life and that can be maintained even amid the torments of the rack; and like the Stoic he owes this to philosophy and to the intrinsic superiority of the mind to the body. M. Guyau puts this point effectively: but he modernises it rather misleadingly when he says, "L'esprit qui n'était d'abord qu'un moyen pour le corps reprend son rôle de fin véritable, et cela grâce à une idée qui fait le fond de l'esprit humain, l'idée d'infini. Les peines et les plaisirs de l'esprit ont quelque chose d'infini et éternel."[1] For the Greek mind, from first to last, found perfection in the finite rather than the infinite: and accordingly the cup of happiness is filled to the brim for the Epicurean sage by a consciousness not of the unlimitedness of mental satisfaction, but of its completeness within the appointed limits of life; he is said to live ἐν ἀθανάτοις ἀγαθοῖς, but that is merely a way of saying that "death does not concern him".

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[1] I may observe that Zeller is not perfectly consistent in his language on this rather subtle point. In his account of the Cyrenaic doctrine he says:—"Auch das aber scheint ihnen bedenklich, wenn man . . . die Aufgabe des Menschen darein setzt, sich die höchste *Gesammtsumme* von Genüssen zu verschaffen": while afterwards in the chapter on Epicurus he observes with more accuracy that they "die Glückseligkeit nicht in dem Gesammtzustand des Menschen, sondern in der *Summe* der einzelnen Genüsse suchten."

In an original and interesting chapter on "Contingency and Liberty," M. Guyau defends vigorously the well-known "clinamen" or spontaneous deviation from the perpendicular, attributed by Epicurus to his atoms; on which most historians of philosophy have poured unmitigated contempt. He argues forcibly that this assumption is necessary to reconcile the Free Will which Epicurus regarded as at once a datum of experience and a necessary postulate of his ethical optimism, with that complete mechanical explanation of nature by which he claimed to annihilate superstition and secure the mental tranquillity of his disciples. If man's actions are not completely determined, there must be spontaneity in the elements out of which he is composed; otherwise the chain of natural causation is broken and the miraculous let in. M. Guyau shows the mistake of supposing that Epicurus attributed this spontaneity to his atoms only in the origination of worlds, afterwards suspending its exercise: and he plausibly suggests, on the strength chiefly of a passage of Plutarch (*De Solert. Anim.* 7), that the τύχη which Epicurus admitted as a third cause, side by side with mechanical necessity and human free will, was merely the form in which this essential spontaneity reveals itself to us.

The Epicurean view of death is also well and carefully presented: but M. Guyau seems to have trusted too completely the gloomy description given by Epicurus and his school of the "prava relligio" from which they claimed to deliver mankind. The following sentences, for instance, cannot be applied without great qualifications to any period of ancient history later than the seventh century B.C.:—

> "Dans les religions antiques, au contraire, l'espérance du ciel n'existait pas; seuls, quelques héros comme Hercule ou Bacchus avaient merité de prendre place lá-haut parmi les dieux; tous les autres hommes, pêle-mêle, ensevelis sous la terre, y demeuraient à jamais loin du jour, et si parmi eux il y en avait de plus châtiés, de plus malheureux les uns que les autres, il n'y en avaient vraiment point de *fortunés.*"

This certainly expresses, so far as we know, the idea of a future life generally entertained by the contemporaries of Homer and Hesiod. But so soon as we come to Pindar we find a distinct expectation of a posthumous fate corresponding to earthly merit as well as demerit—compare, among other passages, the second *Olympiad*, and the fragment commencing Ψυχαὶ δ' ἀσεβέων. Then, for Plato's age, we have distinct evidence of a similar hopefulness in the language placed in the mouth of the aged Cephalus at the outset of the *Republic*;[1] and in several of the mortuary inscriptions that have come down to us from later times the survivors assume that the departed are in bliss among the stars or in the air. How widely spread this brighter tone of sentiment was we cannot now determine; but at any rate we are bound to recognise its existence.

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[1] In the same way there is an awkward and distorting Teutonism not only in the phrase but in the thought of Zeller, when he speaks of "die Unendlichkeit der auf sich selbst beschränkten Subjektivität" as the fundamental assumption of Epicureanism.

In the chapters which deal with the social aspects of Epicureanism M. Guyau is especially concerned to point out the various and striking anticipations of modern thought which the system presents. He notices the difficulty which the Epicureans found in providing a rational basis for the Friendship which they exalted as so essential an element of happy life: a difficulty signalised by the fact that on this point only have we any evidence of a distinct advance made by disciples of Epicurus beyond the position taken up by their master. The result of this advance is exhibited in the earliest form of that "associationism" by which English utilitarians have met the similar difficulty of explaining disinterested benevolence. In the same way Epicureanism presents the first definite and constructive statement of the modern utilitarian view of Justice, as essentially dependent on a social convention for the promotion of common interest by the prevention of mutual injury; so that, while the general conception of justice is everywhere the same, its particulars naturally vary with the varying circumstances of different communities. Again we have a germinal form of the modern view of human progress in the pictures of the origin of civilisation given by Lucretius—to the originality and importance of which Zeller does rather imperfect justice by speaking of them as "im ganzen sehr gesunde Ansichten". M. Guyau, on the other hand, in this part of his work, has not altogether resisted the temptation to modernise unduly his interpretation of ancient texts, and to underrate the characteristic differences of the modern systems with which he compares them. The criticisms, however, with which his exposition is interspersed are nearly always sensible and just.

About one-third of the book consists of shorter studies of modern successors of Epicurus; the writers most fully treated being Hobbes, Rochefoucauld, Spinoza, and Helvetius. These form rather a strange *quartette*: and in truth the point of view taken is unfavourable to an adequate treatment of Spinoza: nor do I think that sufficient attention is given to the characteristics that distinguish Hobbism—as an original and powerful essay in constructive politics—from the older egoism to which it may no doubt be affiliated. On the other hand, the account of Helvetius is very interesting and instructive.

H. SIDGWICK.

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[1] *Cf. Rep.* p. 331. . . . *τῷ δὲ μηδὲν ἑαυτῷ ἄδικον ξυνειδότι ἡδεῖα ἐλπὶς ἀεὶ πάρεστι καὶ ἀγαθὴ γηρότροφος.*

Schlaf und Traum. Eine physiologisch-psychologische Untersuchung. Von Paul Radestock. Leipzig: Breitkopf und Härtel, 1879. Pp. x. and 330.

The subject of dreaming, though an important one in many respects for psychological theory, is apt to be scantily dealt with in systematic treatises on psychology. Even a writer like Wundt who, in his work on Physiological Psychology, devotes a special section to dreams in connexion with hallucinations, is not able to do justice to the theme. The fact is that the state of dreaming, together with its physical conditions, is a matter of such great intricacy and speciality that it calls for distinct treatment. Just as the pathological phenomena of hallucinations are best discussed apart from the normal processes of mind, so the facts of dreaming, which form an intermediate link between the normal and permanently abnormal activities of mind, need to be handled separately. Hence the publication of a comprehensive volume on the subject of sleep and dreams, like that of Herr Radestock, is a step in the right direction. This is not, of course, the first monograph on the theme. The rapid progress, however, of psychological and physiological research during the last few years quite justifies the attempt to reconsider the whole subject from our present standpoint of knowledge. It must be added that, in so far as this volume aims at a full systematic presentation of the various theories of dreaming, it hardly has any predecessors to compete with.

The author appears to be a disciple of Wundt, and his psychological treatment of dreams follows closely on the lines laid down by that writer. That is to say, the images of sleep are regarded as peculiar combinations of mental states, illustrating the same laws of association and reproduction as other combinations, and owing their peculiarities to the special physiological circumstances of the sleeping condition. Hence our author studies dreams in close connexion with the whole subject of sleep. Over and above this, he gives us studies on the practical aspects of dreaming as affecting the tone of mind, as giving rise to religious hopes, and so on. Thus we have the subject viewed from every side. In truth it must be said that the work suffers from an excess of fulness. The writer has not always compelled himself to exclude interesting matter, more or less closely connected with his subject, in obedience to a strict scientific purpose.

The treatise begins with a chapter on the importance of sleep, and the significance of dreaming in the mental history of individuals and peoples. This is a very miscellaneous section, and discusses among other things the effect of half-forgotten dreams on our emotional life, our sympathies and antipathies, and, more fully, the important functions fulfilled by dreams in primitive culture. On this last head the author draws largely from Mr. Tylor, though he seems to be unacquainted with Mr. Spencer's cognate theories of primitive superstition. This side of the subject is handled with an unnecessary fulness of illustration, and there is a manifest tendency here and there to wander into the whole territory of primitive belief and custom.

Chapter II. treats of dreams as made use of by the poet and as conceived by the philosopher—an odd juxtaposition. One might wish that in place of these first two chapters, Herr Radestock had given us a succinct account of the historical development of dream-interpretation and theory.

Chapter III. brings us to the psychological prolegomena of the subject, by taking up the laws of the normal and abnormal reproduction of presentations. The principles of association, the processes of the agglutination or fusion of impressions, and the various forms of abnormal mental combination, are here gone over. One bold suggestion in this chapter deserves to be recorded here. In calling attention to the fact that the element of illusion penetrates deeply into our normal mental life, Herr Radestock observes: "Every scientific hypothesis properly rests on illusion, in as much as here also the objective factor is controlled by a subjective, and has its content determined in a manner answering to no external element." Our author might have carried the elucidation of the far-reaching influence of illusion further than this. A complete discussion of it would require one to touch on the belief in single objects, and in an external world independent of mind.

Having thus laid down the general psychological principles which underlie his subject, our author proceeds, in Chapter IV., to the special treatment of dream-phenomena, and approaches these by an interesting discussion of the causes and characteristic features of sleep. The circumstances which promote and hinder sleep are here carefully reviewed. According to Herr Radestock, who adopts the views of Burdach, sleep is not distinguished from waking as the period of high vegetal as contrasted with animal life. It is true that the lower group of functions are in the ascendant inasmuch as they are less controlled by the higher animal activities, and are more equally balanced one with another; but at the same time these lower activities are themselves greatly depressed during sleep. As with respect to the bodily, so with respect to the mental life, sleep is not to be too sharply contrasted with the waking state. Most psychical activities are simply lowered, not wholly suspended during sleep, and thus dreaming differs from waking consciousness, simply in the general depression of mental processes and in an alteration of the proportions of the several psychical activities. The periodic physiological changes which characterise sleep are in fact viewed by Herr Radestock as a part of a never-ceasing recurring cycle of changes extending through day and night. The author here assembles a number of curious physiological facts as to the variations under normal circumstances in the rate of activity of the several organic functions during successive periods of the day and of the night. There is a series of changes in the psychical life exactly parallel to those of the physical. In the case of each the point of maximum activity or culmination-point is said to be reached soon after noon, the point of minimum activity is attained about an hour after falling asleep, or about midnight. This fact of the nocturnal fall and rise of the energies of the organism is applied to the explanation of the characteristic differences of the dreams of the early night and of the morning. The question whether sleep is ever perfectly dreamless is very carefully discussed. The author inclines to the view that in the deepest sleep the psychical activities, like the physical, are merely reduced to a minimum point without being wholly suspended.

In the remaining sections of the work (Chap. V. to Chap. X.), the writer gives us a psychology of dreams. He here treats of the elements which compose dreams, of their various kinds, of their relations to waking consciousness on the one hand and to the mental condition of the insane on the other hand. Throughout these chapters the author shows himself not only well versed in the literature of his subject, but also practised in careful independent observation. His psychological penetration, moreover, displays itself in a number of suggestive remarks. Herr Radestock does not profess to give us a new theory of dreams in this volume. He contents himself with accepting the best explanations of contemporary psychologists and physiologists. More particularly he adopts the principles laid down in Wundt's work, and seeks to follow these out more fully to their consequences. The causes of dream-imagery in present sensory stimulations, objective and subjective, motor excitations and the play of association, and more especially the action of subtle links of similarity and the influence of feelings of pleasure and pain in determining the sequence of ideas, are here set forth with great wealth of illustration. The author does good service to the cause of sober science by protesting now and again against the fanciful, not to say mystical, doctrines of Scherner and others. Here is an opportune remark *à propos* of the influence of feelings of digestion on our dreams: "We must not however suppose, with Scherner, that in dreams thus caused the whole intestinal system is symbolised under the form of broad and at times very dirty streets of a town, and then narrower village streets. In those cases in which the stimuli of the organism and the systemic sensations arising from these are weak, the line of association is determined not by the content of the ideas, but by the tone of feeling. There arise images, the contents of which answer to the tone of feeling of the impressions of the moment." When the organic feeling calls up an idea by reason of its particular local character, as when the sensation of pressure in the bladder suggests the image of water, we are not to assume, with Scherner and Volkelt, that our dream-fancy directly intuites the locality of the stimulus. What we have in this case is a vague feeling of the bladder and its contents, which, though too weak to rise itself into distinct consciousness, serves as a subordinate link in the chain of ideas. Herr Radestock similarly places himself on the ground of positive fact, when he argues that there is no sharp antithesis or relation of polarity between waking and sleeping consciousness, such as would be formed by the total absence in dreams of our ordinary ideas of the relations of time, space, and cause. The great determining circumstance in the case of dreams is the fact of the reduction of attention to the minimum point of intensity, owing to which the numerous associative forces have uncontrolled play, and images follow one another, and blend in the most picturesque confusion. Herr Radestock again opposes himself to the so-called philosophical, but essentially mythical, mode of regarding dreams when he comes to treat of their "prophetic" side. Thus, for example, he suggests that the many cases of a foreboding of a friend's death may be explained by natural causes. A letter perhaps, or some stray thought, reminds a person of the weak constitution of his friend, and thus there commences the sequence of ideas which leads up to the anticipation of death. And "if the distance between them is not too great, it is possible that at times the same meteorological and other influences which occasion an anxious dream to the one, may bring death to his sick friend".

The general results of Herr Radestock's volume are summed up in three propositions: (*a*) The psychical and physical processes always run parallel to one another, and this parallelism is seen in the dreams alike of the healthy and the diseased. (*b*) The normal and abnormal mental activities present no qualitative, but only quantitative differences. Thus "waking consciousness passes by many single but connected and inseparable gradations into sleeping consciousness and dreaming, and in like manner no sharp boundary is to be found between healthy and diseased conditions of the mind". (*c*) Finally, the different conditions run one into another, so that we find something like waking in sleep, dreaming in waking, flashes of intellectual insight in insanity, and touches of insanity (hallucination) in a healthy condition of mind. On the other hand, the ideas of the one mental condition exert an influence on the succeeding condition, as far as the physiological circumstances permit, so that there is a reciprocal action between waking and sleeping, and between mental health and mental disease. Thus the effect of Herr Radestock's separate and exhaustive treatment of the subject of dreams is to connect these more closely with the phenomena of waking consciousness, and so to incorporate the theory of dreaming in the main body of psychological doctrine.

JAMES SULLY.

Proeve van eene Geschiedenis van de Leer der Aangeboren Begrippen. Door Dr. C. B. SPRUYT. Leyden, 1879. Pp. 357.

The Trustees of the Stolpian Fund—mentioned in my late account of Philosophy in the Dutch Universities (MIND IX.)—have done particularly good service to philosophical readers of our language in publishing Dr. Spruyt's prize-essay on the Doctrine of Innate Ideas. As a graduate in natural science, this writer takes an interest in the subject apart from its bearing upon our everlasting religious differences, and by his close criticism and lucid exposition fully justifies his recent appointment to the chair of Philosophy in the new University of Amsterdam.

Holding that the ethical belief of the future, and consequently the fate of European civilisation, depends on the issue between sensationalism and the acknowledgment of an *à priori* element in all human thought, Dr. Spruyt takes a higher ground than the wording of the Trustees' question might seem to demand. The dispute about "innate ideas" carried on in the 17th and 18th centuries becomes a mere incident in the controversy of many generations touching the nature of knowledge.

Plato's ideas, conceived by him as the true realities, had been converted by his later admirers into thoughts that reside in a Divine Mind.[1] Hence St. Augustine's doctrine of ideas contained in a Universal Truth or Reason. This was mixed up by the Schoolmen, especially Thomas Aquinas, with reminiscences from Aristotle concerning an intelligence of first principles, as a natural *habitus* of our mind which is brought into play only on occasion of sense-perceptions. The existence of such principles, or first and immediate truths, is assumed in some sense or other as soon as we grant the possibility of demonstrative science; but in the hands of the Schoolmen they attained the dignity of the highest laws to which all forms of being in itself are subject. Now when Descartes, in his *Meditations*, *Answers to Objections*, and *Notes against Regius*, mentioned "innate ideas," he understood those laws as pourtrayed in our minds through a natural faculty. His opponents, misled by the sound of words, harped either on "ideas" in their original acceptance as existent outside the human mind, or on "innate" in its proper sense[2] of actually present even in the new-born infant, and so obtained easy triumphs over an hypothesis which no one had ever undertaken to defend.

There was a deeper current of philosophical thought running under those verbal bickerings. Dr. Spruyt thinks it was Christianity that displaced the centre of human interest from the world around us and mankind as part of it, to the inner self and the individual life. Others indeed might ask whether it was not rather a gradual displacement of that sort, brought about by previous agencies, and traceable from pre-Socratic times downwards, that was needed to prepare the way for an interest in the teachings of the Gospel. At all events the problem of the origin of our convictions derived a fresh importance from its connexion with the questions of theology, the more so at a time when modern Europe felt compelled to give up its allegiance to mediæval authorities. Of more weight than Descartes' expression of "innate ideas" are his occasional remarks about our representations of things being called forth by outward impressions, but produced from the mind itself. Besides these, he drew a distinction between intuitive and pure thinking, which his followers, less gifted but more intent on metaphysics than their master, straightway combined with the old scholastic one between a lower and a higher part of the soul, the latter being concerned with a supra-sensual world—the province of mathematics, metaphysics, and ethics. The influence of Malebranche made them all accept universal and necessary truths; and the unprofitable "innate ideas" might have quietly died away but for their adoption by the once popular *Logique de Port Royal*, which made it advisable for Locke to disprove them at great length.

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[1] As a help towards the understanding of this conversion of meaning, one might point to Aristotle's identification of νοῦς (the so-called ν. ποιητικός *De An.* III. 5) with νοητόν, *Metaph.* Λ. 7.

[2] Friar Bacon, in his *Specula Mathematica* I. 3, employed the word with some caution: Mathematicarum rerum cognitio est *quasi nobis innata* (Eucken, *Grundbegriffe der Gegenwart*, p. 73). But Lucretius (II. 286) had already mentioned the *innata potestas* of self-determination.

Locke's principal achievement consisted in disclaiming the confidence of all previous thinkers in the absolute correspondence between our conceptions of being and being in itself.[1] His empiricism did not prevent his allowing "general and certain truths," and notions like those of substance, power and cause, without which we could never construct a body of knowledge. But then it forbade him to found those truths upon anything but the habitudes and relations of our own ideas; nor did it enable him to give a satisfactory account of the origin of those notions. Henceforward, mathematics, ethics, even theology, could only by courtesy be accepted as genuine knowledge of anything outside our states of consciousness, and Locke himself was led to "suspect that natural philosophy is not capable of being made a science" in the usual sense of the word.

Passing by Condillac and his feeble attempt to reduce Locke's "reflection" to mere transformed "sensation," Dr. Spruyt observes that the French author receives undue credit for his improved theory of vision, which he took most probably from Berkeley.

The same inconsistencies that made the doctrine of Locke resemble in more than one respect the Cartesian views, lessened its obvious distance from those developed in Leibnitz's *Nouveaux Essais*. The one material point of dissent is the assumption of "unconscious perception," which Leibnitz borrowed from some of the Cartesian school. It is true that, in his opposition to Locke, he dwells neither on the immanent causation of all perceptions nor on their pre-established harmony, and so contributes on his part towards an appearance of general agreement with the English philosopher.

In later days, both Sensationalism and its opposite entered a new stage of development owing to the researches of Hume and those of Kant. The former, whose able work in this department came to an untimely end, deserves his philosophical fame by his determined adoption of the consequences of Locke's sensationalistic and nominalistic principles. Supposing the "universal and necessary truths" to regard merely the agreement or disagreement of our own ideas, how can our connected knowledge have any legitimate reference to extra-mental existence? But Hume, while thus throwing grave doubt on the validity of all ideas that go beyond a simple recalling of received impressions, never remarked that some of those impressions, to wit, all that contain a reference to objects of any kind, already imply, as we become aware of them, such notions of identity, substance, etc., as he would fain avoid, because he could neither justify nor account for them on the ground he had taken. It was Kant who proceeded to analyse experience itself, and found it to contain elements provided by the mind in applying its native modes of intuition (those of space and time) and of thought (the categories). As a consequence, he could no longer identify "objects" with "things-in-themselves," but must hold the former to be "what is represented in constant accordance with experience". Nor could formal logic, mathematics, and the most general principles of physics afford any insight except into those universal and necessary forms of our mental conception. There is no denying that Kant himself fell back into traditional errors by applying the notion of causality to the relation between our sensations and things-in-themselves—therewith affording a pretext for the revival of dogmatism in Fichte and his successors—and by supporting unconditional moral obligation on a two-fold production of our actions, in our double capacity as belonging to a phenomenal and a noumenal world. This cloudy hypothesis would hardly have been put forward if Kant had only seen that determinism is as compatible with a standard of morality to be upheld in our behaviour as with a standard of bodily welfare to direct our sanitary measures.

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[1] In the notes to my lecture on Spinoza (Leyden, 1877) I have called attention to the doctrine of our own Geulincx (died 1669), as quoted by Dr. Ed. Grimm (*Arnold G.'s Erkenntnisslehre, etc.*, Jena, 1875, p. 66), from his extremely rare treatise on Metaphysics: "To conceive things in the forms of thought is a necessity unavoidable even to the wisest; but from the judgment which attributes those forms to things in themselves, a wise man is certainly able to abstain; and this after all will be found to be the true wisdom."

Reid and his followers attempted to parry Hume's argument, that experience did not warrant the indispensable suppositions of science, by pointing to the fact of their indispensability, which Hume never meant to call in question. Their mistake was pointed out by Kant, but they were right in maintaining that judgment is concerned with some object, not merely with an agreement of ideas; that perception is something different from sensation, and belief not the same with vividness and permanence of ideas; also, that even in infants and animals there are traces of a mind not simply the recipient of outward influences. Yet the "object" retained with them its traditional character of independent existence, nor could all their deprecating and ridiculing avail against the Humian scruples. Thos. Brown, though a much more original thinker than many suppose, unsuspectingly made his subtle and valuable investigations of the natural history of our mental phenomena do duty for a theory of knowledge, which, as he might have learned from Hume, deals with quite a different problem. His psychological theory of our intuition of a world in space is probably the best attainable on sensationalistic grounds, and therefore adopted by eminent writers of the same school even in our own days; but Dr. Spruyt shows it to be incapable even to explain the step from sensation to perception.

In the late J. S. Mill there appears a realistic element, fairly conspicuous in his remarks on classification, where he confesses to a belief in natural kinds. However, the results of his early education stood in the way of his working out a theory on such a basis, and kept him mainly in the groove of his sensationalist predecessors. In fathering all universal judgments upon induction, he could not admit an exception in favour even of mathematical truths; and it would have been of great interest to see him answer the arguments of Kant, if he had not unfortunately chosen to discuss the parody upon them set forth by Whewell. He succeeded in establishing that the apparent inconceivableness of the contrary is not always to be taken as sufficient proof—only he took it as such himself in the case of the fundamental laws of thought. He would account for the reliability of mathematical truth from our knowing by experience "that the properties of the reality are faithfully represented in the image"—a knowledge which it is not in the power of experience to provide. Here Dr. Spruyt enters deeply into the subject of Non-Euclidean geometry, as discussed in this journal,[1] adding to the arguments put forward by the present writer some others suggested by his professional study of physics and mathematics. A physical geometry, as conceived in the second article of Dr. Helmholtz, he shows to be at the best but an approximate verification of the exact demonstrations supplied by geometry proper. He would explain the universal and necessary character of algebra from its continuity, not with the laws of thought, but with those of spatial intuition, a thesis which many will desire to see developed some day in its relation to the inquiries of writers like Boole and Robert Grassmann. Still he doubts not but there remains some connexion to be discovered between the laws of both orders.

As the last representative thinker on his list, Dr. Spruyt takes Mr. Spencer, whom many believe to have incorporated both empirism and its rival in an improved theory. That philosophy is but "knowledge of the highest generalities" he cannot admit, since in all ages philosophy arose from a desire of something more than any empirical data, however bound up in a system, can yield us—a desire which also lies at the root of religion, morality, and art. Besides, it is not given to a human being to grasp the true import of the highest generalities even of one single science before he has mastered a host of details by half a lifetime of incessant application. Comte in a measure avoided the difficulty by keeping to the discussion of methods, with which one need not utterly despair of becoming sufficiently familiar. What are given in Mr. Spencer's treatises as general laws, are little else than remote analogies and verbal coincidences between disparate truths. The famous doctrine of Evolution, admirable as an instrument of scientific research in certain directions, is found wanting in the logical requirements of a lasting theory. In psychology there are contrived the most ingenious devices for escaping the recognition of an ego as a distinct ordering principle, and making a community of vivid and faint manifestations order itself in our consciousness according to its own laws. For the subject and object there are substituted the human individual and the world around it. The "law of intelligence" proclaimed is anything but an improvement upon the laws of association of older British psychologists, owing to the self-imposed task of explaining psychical states as the wrong sides of states of the nervous tissue. And even if we limit that law to the case of a fully developed understanding, there remains the question how to account for a harmony between successions in consciousness and successions in the outer world. Mr. Spencer on this point is aware of only two possible hypotheses: that of pre-established harmony, which he rejects because unwarranted by the facts, and that of a tendency towards association of psychical states, growing out of experience not only in the individual but in a succession of generations. By his powerful vindication of psychical heredity, Mr. Spencer assuredly does away with the *tabula rasa* and the omnipotence of education; only we must remember that there is a hereditary predisposition not only to the better intelligence of certain truths but to the adoption of certain prejudices as well. Nor does his theory succeed any better than the older forms of sensationalism, in making out how we are brought to distinguish between truth and error, to gain convictions, to believe that we possess knowledge and science. It takes no account of a third hypothesis, that of Kant, according to which the "objects" are themselves formed under the influence of our native forms of intuition and of thought. Whatever may be the merits of evolutionism in psychological science, it really leaves untouched the philosophical, or say transcendental, questions concerning the nature of knowledge. In treating these, experience and the world that it holds up to us are not things that may be taken for granted, but things that we have to examine critically as to their significance. There was something after all in the "innate ideas" of an age long past. They bore witness in their way to the specific operations of the mind, which, not content with taking notice of the concatenation of phenomena, separates reality from appearance, beauty from malformation, and good from evil.

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[1] The remarks on pages 553-5 in MIND XII. appear not to have reached him in time for quotation.

J. P. N. Land.

VIII.—NEW BOOKS.

[*These Notes are not meant to exclude, and sometimes are intentionally preliminary to, Critical Notices of the more important works later on.*]

Lectures and Essays. By the late William Kingdon Clifford, F.R.S. Edited by Leslie Stephen and Frederick Pollock, with an Introduction by F. Pollock. 2 vols. London: Macmillan, 1879. Pp. 340, 321.

The Introduction to this collection of the lamented Clifford's non-mathematical lectures and writings includes a bibliographical record of his various productions which has been made as complete as was possible in the circumstances, and, except three lectures on "Seeing and Thinking," which will presently appear in a separate little volume, and some others not or only imperfectly reported at the time of delivery, everything of importance or of more than passing interest is here reproduced. The collection begins with his first Lecture ("On Some of the Conditions of Mental Development") from the year 1868, and ends with his latest Essay ("Virchow and the Teaching of Science") produced in 1878. Reprinted with almost no change of their chronological order, the various pieces correspond very nearly in subject with a scheme of topics which the Editors have found drawn out in Clifford's hand as a sketch of the contents of a comprehensive work to be entitled "The Creed of Science". It is some satisfaction to have in these *Lectures and Essays*, however fragmentary they must now remain, so fairly-balanced a representation of his whole thought as it would, with longer life, have been systematically set forth. Here is the scheme of main topics with the sub-headings appended.

"THE CREED OF SCIENCE. I. What we ought to believe (The duty of inquiry and the sin of credulity—The weight of authority—The nature of inference—Is the order of the universe exact?—Is the order reasonable?). II. What is Science? (Conceptions and beliefs—Knowledge the guide of action—My knowledge and our knowledge, or what is truth?—Truth for its own sake). III. The History of the Sun (The Sun's present work—The evolution of the Earth's crust and evolution of life—The age of the Earth—The formation of the solar system). IV. Atoms (The molecular hypothesis—How far we know that it is true—What we do not know—The nature of the evidence for a [? the] hypothesis). V. Ether (Light is a change of state periodic in time and space—Radiant heat (same thing) has energy, and therefore is motion of matter—Whatever motion is periodically reversed in light is continuous round an electric current—Difficulties). VI. The Beginning and the End (Are molecules eternal? Thomson's hypothesis—The argument from dissipation—The limits of knowledge). VII. Body and Mind (The atomism of the nervous system—The atomism of mind—The parallelism of the two—The great gulf fixed between them). VIII. The Unseen Reality (There is no matter without something like mind behind it—All matter is a part of our minds—The material universe is a picture of something which is like mind—How far is it a true picture?) IX. God and the Soul (Will and intelligence imply a certain organisation of matter—No will and intelligence except those of man and animals has worked in the solar system—The consciousness of man breaks up at the same time with his brain—Nature is uniform in human action). X. Right and Wrong (The facts of the moral sense—The theory of responsibility—The foundation of absolute morality—Piety and Truth)."

Besides selections from Clifford's correspondence, &c., Mr. Pollock gives in the Introduction an exquisite sketch of his friend's life and character.

Studies in Philosophy and Literature. By WILLIAM KNIGHT, LL.D., Professor of Moral Philosophy in the University of St. Andrews. London: Kegan Paul, 1879. Pp. 426.

Of the twelve Essays or Lectures here republished in a revised form, six are more especially philosophical—"Ethical Philosophy and Evolution," "Eclecticism," "Personality and the Infinite," "The Doctrine of Metempsychosis," "Desiderata in the Theistic Argument," "The

Summum Bonum: a Discussion on Culture". With reference to the first and third of these, the author in a few pages of Preface seeks to define anew his position in relation to the theory of Evolution. He does not deny the evolution of intellectual and moral ideas, but only that their evolution can explain their origin: "Every valid theory of derivation must start with the assumption of a derivative Source, or it performs the feat of educing something out of nothing, nay of developing everything out of nonentity". "Evolution pure and simple is *process* pure and simple, with no product, with nothing definite emerging, and with nothing real or essential underneath. . . . If noumena exist, if there be a substantial world within the ego—or within the cosmos beyond the ego—a doctrine of phenomenal evolution is neither the first nor the last word of philosophy, but only a secondary and intermediate one."

Antitheistic Theories. Being the Baird Lecture for 1877. By ROBERT FLINT, D.D., LL.D., Professor of Divinity in the University of Edinburgh. Edinburgh and London: Blackwood, 1879. Pp. 555.

This volume and the author's *Theism* (1877) may, he says, be regarded as two parts of a system of Natural Theology which is still very far from complete. The subjects of the present volume are Atheism—Materialism, Ancient, Modern, Contemporary or Scientific—Positivism—Secularism—Are there Tribes of Atheists?—Pessimism—History of Pantheism—Pantheism. On all these subjects, the author supplements his critical discussion in the text by an appendix of Notes (pp. 441-555), displaying the extraordinary erudition which is usual with him. The chief omission relates to Agnosticism, and this he explains as due to his wish to avoid, in a semi-popular work, abstruse metaphysical discussion; but he adds that he "has long cherished the hope of being able, at some future time, to publish a historical account and critical examination of the various phases of modern Agnosticism".

Education, its Principles and Practice as developed by GEORGE COMBE, *Author of "The Constitution of Man"*. Collected and Edited by WILLIAM JOLLY, H.M. Inspector of Schools. London: Macmillan, 1879. Pp. lxxvi. 772.

"The present work is the first attempt to exhibit George Combe's contributions to education in a collective and systematic form. It has been deemed better, instead of merely reprinting the numerous pamphlets as they appeared, to classify the whole of the educational utterances scattered throughout his extensive works. . . . The chief work of the Editor, in addition to the selection and classification, has been to supply all notes required for the understanding of what was so much a part of the educational struggles of the day; to explain the continual references to a special technical philosophy; and to exhibit George Combe's connexion with the various movements that characterised the educational revival which began with the present century, and in which he took a most prominent part." Beside estimating the character and value of Combe's efforts, the Editor has also sought to make the book "more or less a work of reference on the topics treated of by him, which will be found to include almost all the questions now happily claiming professional and public attention; by bringing down the account of these to the present day; by giving full references to other workers and books on the same subjects. . . . by supplying explanations and illustrations of the text in the Appendix (pp. 657-735) and elsewhere; and by adding an analytical Index" (736-72).

Notes on Mill's "Examination of Hamilton's Philosophy". By THOMAS EDWARDS, F.E.I.S., Doveton College, Calcutta. Calcutta: Thacker, Spink & Co.; London, Thacker & Co., 1878. Pp. 78.

"The greater part of the following pages were written during the lifetime of the late J. S. Mill, and were laid aside at his death. I make no apology for printing them now, nor for the manner in which I have dealt with the opinions and criticism of J. S. Mill. I believe that Hamilton has been attacked most unjustly; and that his critic exhibits in almost every page of his *Examination* a total misapprehension of Hamilton's doctrines. I have dealt briefly with the three leading doctrines—The Unconditioned, The Relativity of Knowledge, and The Synthesis of Belief and Knowledge in Cognition."

Darwinism and other Essays. By JOHN FISKE. London: Macmillan, 1879. Pp. 283.

This is a volume of collected reprints from various American periodicals, chiefly on more or less philosophical subjects. It contains twelve Essays. The first, on "Darwinism Verified," attempts to show that subsequent research has brought to light numerous facts which are exactly in accordance with what the theory in question would lead us to expect, and which may therefore be held as verifications. The next three papers are short reviews of Stewart's *Lessons from Nature*, Büchner's *Man in the Past, Present, and Future*, and Bateman's *Darwinism tested by Language.* The fifth "A Crumb for the Modern Symposium," contains a critique of Mr. F. Harrison's and Prof. Huxley's views on the soul and future life, and gives the author's own opinion on the subject—namely, that "the relation of concomitance between" mental and physical phenomena "remains an ultimate and insoluble mystery". The sixth is a review of Chauncey Wright's *Philosophical Discussions*, together with some interesting reminiscences of Mr. Wright's personality. The seventh answers the question, "What is Inspiration?" substantially from the point of view taken by Mr. Tylor. The eighth deals with Dr. Hammond's work on *Spiritualism and Allied Causes and Conditions of Nervous Derangement.* The ninth and tenth are taken up with Mr. Buckle, the former consisting of a youthful article on the *History of Civilisation*, the latter a more mature notice *à propos* of Mr. Stuart Glennie's *Pilgrim Memories.* The eleventh is an ethnological discussion on "The Races of the Danube," and the twelfth gives an account of "A Librarian's Work".

Psychological and Ethical Definitions on a Physiological Basis. By CHARLES BRAY. London: Trübner, 1879. Pp. 58.

A disconnected exposition of the author's opinions on some of the main topics of psychology and ethics, and called Definitions.

Histoire de la Philosophie. Par Alfred Fouillée, Maître de Conférences à l'École Normale Supérieure. Nouvelle Edition. Paris: Delagrave, 1879. Pp. xvii., 554.

This compendious work begins with a rapid survey (29 pp.) of the philosophy of the various ancient peoples, Indians, Persians, Chinese, Hebrews, &c.; then develops Greek philosophy, including the thought of the Christian Fathers, at considerable length (166 pp.); deals briefly with the Middle Age and the Renascence (30 pp.); and enlarges upon modern philosophy from Bruno and Bacon to the present day (pp. 265). In the Introduction the author states his view of the method to be followed in the History of Philosophy—a method of "conciliation". The historian has first to understand and then to appreciate. To understand, he must put himself at the point of view of others, not at his own, enter into their thought more deeply (if possible) than they do themselves, carry it out farther to discover its direction, fix on the spirit as well as the letter, on the higher rather than the lower parts, the truths rather than the errors, of the various systems. In the work of appreciation, the errors have to be corrected, the truths reconciled. First, the errors of conclusion are to be rectified by means of the principles of the systems. If then the system, when thus perfected, is insufficient for the explanation of reality, there must be error in the principle—error that consists in taking an incomplete and partial truth for the whole truth; and the way to correct this is to complete each system by that other towards which it is borne by its inner tendency. Thus is effected a progressive reconciliation of philosophical doctrines in their positive parts and a reduction of them all to the unity of one larger doctrine. This method is meant to be different both from that of Eclecticism, with its more or less arbitrary selections from different systems, and from the Hegelian method "which ends by regarding error itself as an essential part of the truth, through its identification of contradictories". At the end of his work, the author finds that all recent thinkers agree that the being of things, however differing in development, is one at bottom, and that this ground of all existence must be action; but as to the true nature of this action they divide into the rival schools of Necessity and Liberty. He has then to suggest, as he has elsewhere maintained, that this antithesis may be reduced by forming an idea of moral liberty that is compatible with the determinism of nature; and that when liberty is so understood—not as a liberty of indifference but as a power of indefinite development whose essence consists "dans le pouvoir de se désinteresser et d'aimer"—the antithesis, if it cannot in the present state of knowledge be resolved theoretically, must practically be resolved in favour of the doctrine of Liberty, as alone consistent with the moral ideal. It should be added that the author throughout his exposition takes account also of the development of social and political philosophy, and the *Histoire* is meant to have its complement in his other volume, *Extraits des grandes Philosophes*, containing, with biographies of the chief thinkers, the most important and interesting parts of their works.

Emanuele Kant. Per CARLO CANTONI, Professore di Filosofia all' Universita di Pavia. Volume Primo: 'La Filosofia Teoretica'. Milano: Gaetano Brigola, 1879. Pp. 532.

Prof. Cantoni attempts here the first systematic exposition in Italian of the whole of Kant's philosophy. The present volume covers the theoretic philosophy, the lengthy exposition of the *Critique of Pure Reason* being led up to by a survey of Kant's predecessors and of his pre-critical thought, and supplemented by an account of the *Metaphysic of Nature.* The second volume will complete the work, dealing with the *Critique of Judgment*, and the various Ethical writings, also with Kant's philosophy of law and politics, religion and history, and the *Anthropology.* The author, in his Preface, after sketching shortly the fortunes of Kant's philosophy in Germany ending in the great Neo-Kantian movement of the present generation, reviews the state of philosophical thought in Italy and shows the special need of the Italian mind for such *critical* enlightenment as the present work is designed to afford. The Idealists (as led successively by Rosmini, Gioberti, and Mamiani), the Thomists (most numerous of all, because in Italy it is still the clergy that are most given to speculative studies), the Positivists (few but active and demonstrative), and even the section of Hegelians, must all go to school with Kant and assimilate his whole doctrine before they can enter into the proper movement of modern thought.

Sull' Educazione dei Figli del Popolo nella Scuola pubblica. Studii di GIUSEPPE DESCOURS DI TOURNOY. Napoli: Morano, 1879. Pp. vi. 181.

In these Studies the author discusses various educational questions that have a more or less general reference though mainly related to the special circumstances of Italy. He defines education as the process of bringing to perfection the physical, moral and intellectual faculties of our nature, and looks to physiology and psychology as the ultimate sources of the laws and maxims by which it ought to be regulated. Emphasis is laid on the importance to a rational system of education of the study of the growth of thought and feeling in very young children. The observations and speculations of Darwin, Taine and others in this direction are commented upon and supplemented by some original matter.

Kant's Urtheile über Berkeley. Ein Beitrag zur Kantphilologie von JULIUS JANITSCH. Strassburg i. Els.: Astmann, 1879. Pp. 57.

The author, seeing that Kant's perverted view of Berkeley's doctrine, though often shown to involve a misunderstanding of it, continues to be reproduced in German philosophical literature, has sought to investigate, once for all, the question of the extent and nature of Kant's knowledge of his fancied opponent. He finds that this knowledge was entirely second-hand and superficial of its kind.

Der Wille, die Lebensgrundmacht. Von Robert Schellwien. Erster Theil: 'Der Wille, die Quelle des Bewusstseins'. Berlin: Müller, 1879. Pp. 339.

The author here proceeds to build a theory of Being and Consciousness on the foundation laid in his earlier work *Das Gesetz der Causalität in der Natur* (Mind V., p. 134), where he reached the conclusion that consciousness is but a higher function of that which appears as nature-process. While Being and Consciousness coincide in subjective consciousness, it is not so in objective consciousness, where we have knowledge of Being that *is* apart from our knowing it; and the question is how we come by such a knowledge. The solution is wholly illusory which would explain it by a leap outside of subjective consciousness, by any kind of revelation, or so forth. There is, the author contends, but one way of avoiding scepticism or the doubt of all objective truth, namely, to seek for a like certainty in objective as in subjective truth by resolving that into this—by seeing Object as an *act* of Subject. Will is to him, as to Schopenhauer, the first and most primitive attribute of substance, but, unlike Schopenhauer, he knows of no will without consciousness. Consciousness is "will put forth, the being of substance unfolded by self-movement". In the unconscious stirrings of individuals he can see only modifications of conscious will that "are laden with the negative moment of relation outwards and of determination from without".

On Mr. Spencer's Formula of Evolution as an exhaustive Statement of the Changes of the Universe, followed by a Resumé of the most important Criticisms of Mr. Spencer's *First Principles.* By Malcolm Guthrie. London: Trübner & Co., 1879. Pp. 260.

"This *forthcoming* 'study' of Mr. Spencer's *First Principles* is submitted to the attention of those who wish to master the main arguments and thoroughly to understand the method of this work. The plan pursued is first to find out what Mr. Spencer understands as the fundamental problem of philosophy, next to ascertain his solution of the problem, and finally to criticise that proposed solution. The writer comes to the conclusion that Mr. Spencer fails in his undertaking. There is appended a resumé of criticisms and notices by Birks, Fiske, Martineau, Tyndall, Clifford, Moulton, Lewes, Sully, Bowne, and Green."

On the Philosophy of Kant (Shaw Fellowship Lectures, 1879). By Robert Adamson, M.A., Professor of Logic, Owens College, Manchester. Edinburgh: Douglas, 1879. Pp. iv., 261.

"The main object of these *forthcoming* Lectures is (1) to consider the causes and significance of the recent revival of interest in the Kantian philosophy, and (2) to give a statement of Kant's theory of knowledge which shall bring into due prominence its intimate connexion with the metaphysical idea that underlies the three *Critiques.* They therefore contain a brief study of the fundamental elements of the Kantian system, both in themselves and in relation to the chief problems of more recent philosophy. The Lectures, four in number, were delivered in the University of Edinburgh last January. A body of notes and references has been added."

IX.—MISCELLANEOUS.

Death has lately been busy among the ranks of German thinkers. The name of Dr. J. U. Wirth, pastor of Winnenden, has disappeared from the cover of the *Zeitschrift für Philosophie u. philosophische Kritik*, where it has so long stood with the names of Profs. Ulrici and I. H. Fichte, and the name of Fichte will now disappear also. Dr. Wirth, the author of several philosophical works of old date, died on the 20th of March. On the 8th of August, the son of the great Fichte closed, at Stuttgart, a busy life of 82 years, having retired from his chair in Tübingen in 1866.

The *Vierteljahrsschrift für wissenschaftliche Philosophie*, the youngest rival of the old *Zeitschrift*, has also lost a co-editor in Dr. C. T. Göring, who died on April 2nd. Göring, who began to teach at Leipsic as late as 1874, was one of the most forward representatives of the "scientific" school, and had produced in 1874-5 the first half of a comprehensive *System der Kritischen Philosophie*. The strain of the attempt to complete the remaining two volumes of his design proved too much for his strength, and he is now dead at the early age of 38.

Prof. Johannes Huber, of Munich, died on the 19th of March, at the age of 49. Readers of Mind have had one of his works, *Die Forschung nach der Materie*, brought before them, in No. XI., p. 389. He played an important part in the Old Catholic movement, and as a thinker was specially concerned about the practical issues of the new speculative conceptions of the present generation.

Lastly, the veteran Hegelian, J. K. F. Rosenkranz, died on the 14th of June, at Königsberg, where he has occupied Kant's chair since 1833. He was born at Magdeburg in 1805, and began to teach at Halle in 1828. Besides the edition of Kant's *Werke*, issued by him in conjunction with F. W. Schubert in 1838-40, these are some of his more important works—*Psychologie oder Wissenschaft vom subjectiven Geiste* (1837), *Leben Hegel's* (1844), *Pädagogik* (1848), *Æsthetik des Hässlichen* (1853), *Diderot's Leben u. Werke* (1866).

Prof. Hermann Ulrici's declaration in the *Zeitschrift für Philosophie, &c.*, lxxii., 2, that "so-called spiritism" is now, by professorial reports of recent signs and wonders in Leipsic, raised to the dignity of a scientific question (see Mind XV., p. 415), has called forth from Prof. Wundt, who was mentioned as having been an eye-witness though not so profoundly impressed by what he saw as his colleague Zöllner and others, a reclamation in the form of an open letter to the distinguished Halle professor (*Der Spiritismus: eine sogenannte wissenschaftliche Frage*, Leip., Engelmann, p. 31). A rejoinder to this has also appeared without delay (H. Ulrici, *Ueber den Spiritismus als wissenschaftliche Frage*, Halle, Pfeffer, pp. 28).

The Rev. J. B. Mayor has been transferred from the professorship of Classical Literature to fill a newly founded Chair of Moral Philosophy in King's College, London.

The Journal of Speculative Philosophy.—Vol. XIII. No. 3. 'Fichte's criticism of Schelling' (tr.). 'Hegel on Dramatic Art' (tr.). 'Hegel on Jacob Boehme' (tr.). 'Kant's Anthropology' (tr.). 'Hermann Grimm on Raphael and Michael Angelo' (tr.). 'Schelling on History and Jurisprudence' (tr.). Notes and Discussions. Book Notices.

Revue Philosophique.—IVme Année. No. 7. A. Fouillée—'La philosophie des idées-forces comme conciliation du naturalisme et de l'idéalisme' (I.). L. Liard—'Théorie de la science et de l'induction d'après Whewell'. A. Baudouin—'Histoire critique de Jules César Vanini' (I.). F. Paulhan —'L'erreur et la sélection' (I.). Analyses et Comptes-rendus. Notices bibliographiques. No. 8. D. Nolen—'Les maîtres de Kant: Newton.' L. Carrau—'Le dualisme de Stuart Mill'. A. Baudouin—'Histoire critique de Vanini' (II.). F. Paulhan—'L'erreur et la sélection' (II.). Analyses et Comptes-rendus. Rev. des Périod. No. 9. E. v. Hartmann—'La philosophie religieuse et le néo-hégélianisme'. A. Badouin—'Histoire critique de Vanini' (III.). F. Paulhan—'L'erreur et la sélection' (fin). Analyses, &c.

La Critique Philosophique. VIIIme Année, Nos. 18-32. C. Renouvier—'Les labyrinthes de la métaphysique: Le déterminisme et le libre arbitre' (19); 'Le plus ancien conflit du déterminisme et du libre arbitre' (26); 'Le renouvellement moderne du plus ancien conflit du déterminisme &c.' (30); 'De la caractéristique intellectuelle de l'homme d' après M. W. James' (24, 25, 28, 29); 'Du principe et des vices de la casuistique cléricale' (29). A. Fouillée—'Lettre à M. Renouvier' (22). F. Pillon—'Le principe psychologique de la certitude' (31).

La Filosofia delle Scuole Italiane.—Vol. XIX. Disp. 3. T. Mamiani—'Della preghiera religiosa e come e quando sia efficace'. L. Ferri —'Il trattato di Ciceroni sui doveri'. F. L. Pullé—'Dei sistemi filosofici dell' India (Al professore Ferri)'. R. Bobba—'La dottrina della libertà secondo Spencer in rapporto colla morale'. Bibliografia, &c.

Zeitsschrift für Philosophie, &c.—Bd. LXXV., Heft 1. G. Glogau—'Ueber die psychische Mechanik'. R. Flackenberg—'Ueber den intelligiblen Character' (I.). L. Weis—'J. Sengler: eine Skizze seines Lebens und seiner Gottesidee' (II.). Recensionen. Notizen. Bibliographie.

Zeitsschrift für Völkerpsychologie u. Sprachwissenschaft.—Bd. XI. Heft 2. O. Flügel—'Das Ich im Leben der Völker' (II.). H. Steinthal—'Die ethische Idee der Volkommenheit'. Beurtheilungen.

Philosophische Monatshefte.—Bd. XV. Hefte 4, 5. Höffding—'Die Philosophie in Schweden.' E. Wille—'Ueber das Nirgendsein der Vorstellungen'. Recensionen u. Anzeigen. Literaturbericht. Bibliographie, &c. Hefte 6, 7. H. Vaihinger—'Eine Blattversetzung in Kant's *Prolegomena*'. M. Wolff—'Die Philonische Ethik'. A. Spir—'Ob eine vierte Dimension des Raumes denkbar ist?' M. Carrière—'Begriff u. Thatsache des sittlichen Bewusstseins'. Recensionen u. Anzeigen. Bibliographie, &c. Heft 8. J. Baumann—'Die klassische Moral des Katholicismus'. Rec. u. Anzeig. Bibliog., &c.

Vierteljahrsschrift für wissenschaftliche Philosophie.—Bd. III. Heft 3. 'Nachruf an C. Göring.' C. Göring—'Ueber den Missbrauch der Mathematik in der Philosophie' (Ein nachgelassener Vortrag). K. Lasswitz—'Ueber Wirbelatome u. stetige Raumerfüllung' (Schluss). G. H. Schneider—'Zur Entwickelung der Willensäusserungen im Thierreich' (Schluss). A. Horwicz—'Das Verhältniss der Gefühle zu den Vorstellungen u. die Frage nach dem psychischen Grundprocesse'. W. Wundt—'Psychologische Thatsachen u. Hypothesen' (Reflexionen aus Anlass der Abhandlung von A. Horwicz über das Verhältniss der Gefühle zu den Vorstellungen). Recensionen. Selbstanzeigen, &c.

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